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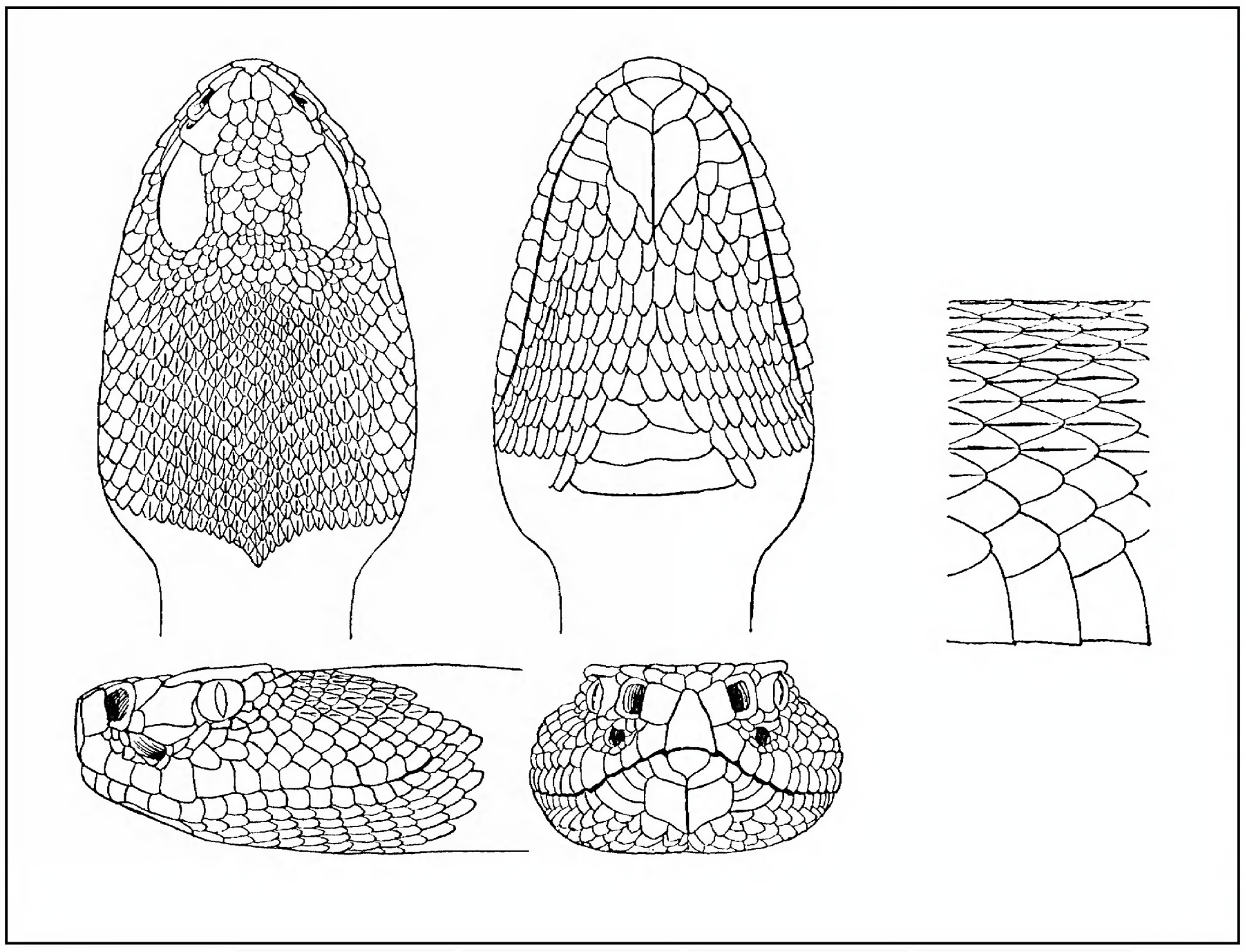

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Degenerated Science
A Critique of the Proposed New Laws Protecting Venomous Snakes in North Carolina, and a Request for Science and Factuality in the Evaluation of Animals for the Endangered Species Act

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It is in man's power to content himself with the proofs he has, if it favors the opinions that suit his inclination or interest, and stop further research. John Locke

In a progressive research program, theory leads to the discovery of hitherto unknown facts; in degenerating programs, theories are fabricated to accommodate known facts. Imre Lakatos, The Methodology of Scientific Research Programs

The first symptom of pathological science is that the maximum effect is produced by a causative agent of barely detectable intensity. Second, the effect is of a magnitude that remains close to the limit of detectability. Third, the investigators claim great accuracy of measurement. Fourth, fantastic theories that contradict experience are presented. Fifth, criticisms are met with ad hoc explanations presented on the spur of the moment. Sixth, the ratio of supporters to critics rises to somewhere near 50 per cent and then falls gradually to oblivion. In all, pathological science arises from self-delusion. Irving Langmuir, Nobel Prize-winning physicist

Abstract

I sampled the advisory reports of a "Scientific Council," whose members are working to influence lawmakers regarding wildlife (nongame) regulations and the Endangered Species Act (ESA) in North Carolina. These reports concern putatively "declining" populations of certain reptiles and amphibians, especially rattlesnakes. I reviewed these reports, and compared their methodologies and results with the known data. My diagnosis is that they meet Irving Langmuir's definition of *pathological science*. By focusing on a causative agent of barely detectable intensity, these programs will achieve barely detectable results. Moreover, because these programs amount to misdiagnoses, they are leading Environmentalists down a "primrose path" toward the extinction of the affected animal populations. In keeping with Mackay's "Extraordinary Popular Delusions and the Madness of Crowds" (1852), I conclude this "Scientific Council" to be a phenomenon of bandwagon mania. Exploiting their institutional affiliations to ride under a banner of science, the membership is in reality an activist group allied more to McCarthy-style propaganda organizations than to science. Deluded themselves, they delude state and federal government into adopting degenerated and ultimately ineffectual programs as an "easy way out" of the environmental controversy. I show how large vested interests in environmental protection (ESA, CITES, and corresponding regulatory agencies in federal and state government) profit from the endangered species phenomenon and unintentionally bolster it from the standpoint of enlarging their own bureaucratic power base, absorbing hundreds of millions of dollars of public funds that would be better directed toward true solutions to the endangered species problem.

In this paper I focus on a new rattlesnake "protection" regulation slated to go into effect in April 2001. I explore the justifications posed for this regulation and the expected outcomes, none of which, unfortunately, will protect the snakes as planned. They will, however, cause many local problems while giving us a false sense of assurance that something positive is being done to help the snakes. In effect, the regulation is targeted to affect a statistically insignificant "offender" that because of wide publicity in a variety of popular venues (and the propaganda of misguided government activist groups looking for a pogrom) has assumed an aspect of exaggerated importance. Portrayed by the U.S. Fish and Wildlife Service as a "billion dollar a year monster that is decimating our native reptiles and amphibians," the commercial trade in live domestic snakes (all species; but herein referent mostly to venomous snakes) is of such insignificance that its alleged impact can barely be detected statistically. Indeed, it is vastly exceeded by the numbers of these same animals killed annually from roadway mortality throughout the United States. Thus the attack on commercial trade in snakes in an effort to save declining species is *pathologically* formulated (by the Langmuir definition), to the extent that only a deluded outlook could seriously entertain it.

I show (1) that the targeted "offender" is not statistically relevant to the populations of these species and so eliminating them will produce no measurable effect; (2) that these particular species cannot benefit from such protection as can be offered by the ESA; (3) that a growing ESA is the greatest proof of its failure; (4) that the ESA has reached a critical mass, having become so enormous as to perform no useful benefit to most forms of wildlife; (5) that abolishing the ESA and establishing in its place an EHA (Endangered Habitat Act)

is the only tenable recourse in a world human population that has also reached critical mass.

The world cannot benefit from a larger ESA. It can benefit from more and larger national parks and reserves. Within this system, the herptile must be managed as a game resource for everyone. In an EHA model, so called "nongame" is elevated to the status of "game," made abundant, and its use as a resource by the public is encouraged, however "managed" as is other game. An expanding EHA improves the human environment, whereas a proliferating ESA is worthless to humanity and damaging to nature in direct proportion to its increase. The larger the ESA, the greater the measure of its failure. The larger an EHA, the greater the measure of its success. This is purely rational.

Beginning on the local level with the present "rattlesnake" problem, this paper investigates the national and ultimately international implications of the "pathological approach" to wildlife conservation. The reader will discover that the rattlesnake issue is but the "tip of the iceberg" in a madness that has extended from a deluded scientific community to the government agencies they have also inadvertently deceived. Using the "specimen" situation in North Carolina, I uncover in slow detail the flow of this pathology as it creeps from the non-scientific activist groups that foment it into the broader conservation efforts of state and federal government. The best efforts of a conservation movement reliant on such pathologically unhinged systems can only be doomed to fail.

Foreword

A group calling itself the "Amphibian and Reptile Scientific Council" has formed in North Carolina in order to influence state law makers into granting official protection to four of North Carolina's venomous snakes. These are the eastern coral snake (*Micrurus fulvius*), and the eastern diamondback rattlesnake (*Crotalus adamanteus*), which will be elevated to a state-listed "Endangered" status; and the timber rattlesnake (*C. horridus*) and the pigmy rattlesnake (*Sistrurus miliarius*), which will be elevated to "Species of Special Concern." A harmless snake, the southern hognose (*Heterodon simus*) will be granted a "Special Concern" status also. The reason given for this action is a supposed "decline" in the numbers of these animals. Under the proposed law, the snakes cannot be killed; they also cannot be moved, collected, or kept in captivity.

The law states that the snakes "can be killed in self-defense," but because the definition of "self-defense" is vague and ultimately meaningless outside of the subjective context, we judge that the law can have no practical enforceable value. It is merely a token, or symbolic protection that will cause more problems than it solves in North Carolina, bringing many honest citizens to face criminal charges that they do not deserve, and do little or nothing to help populations of snakes, since the true causes of reptile decline are not being addressed. It is also a highly dangerous law from the public standpoint in that it bans the public's ability to prevent the occurrence of snakebite, which is a phenomenon of accident, not, as our lawmakers imagine, from direct confrontation (see below).

In this article we look at the possible effects of this ruling on North Carolinians and North Carolina native snakes. We review the true causes for reptile declines and place them in order of their statistical importance, with an emphasis on demolishing a popular myth: that deliberate human persecution (especially for live commercial trade) has a significant impact on the populations of widespread native snakes. We will also take a look at the self-dubbed "Scientific Council" in order to better explore its own motives. Since they have performed no scientific investigation to support their proposal, we judge that this issue has no basis in science, but was influenced by emotion, political climate and in some cases, self-aggrandizement among its membership. Further, we will show that this new proposal by the "Scientific Council" is but an extension or highly amended version of a previous (1998) proposal called "Report of the Reptile and Amphibian Scientific Council on Commercial Trade," in which this same council attempted to ban public access and usage of some 148 North Carolina native species. In effect, under the guise of "protection," the new law proposal (2000) is but a covert incremental measure whose overall goal remains the same—to end public access (use) to North Carolina native reptiles and amphibians.

The snakebite issue: Why North Carolina?

Studies tell us that there are about 7000–8000 venomous snakebites each year in the United States, most of which are caused by rattlesnakes (Russell, 1983). The incidence of snake venom poisoning in North Carolina is described as being the highest of any state, with approximately 18.79 bites per hundred thousand people. This amounts to about 1100 venomous snakebites each year in North Carolina, accounting for about 15% of all snakebites in the United States. By contrast the incidence of snakebite in Maine is 0.00 per 100,000 people; in Vermont it is 0.08; in New Hampshire it is 0.16; in New York it is 0.22; in Massachusetts it is 0.04; in Connecticut it is 0.16; in New Jersey it is 0.41; in Pennsylvania it is 0.65; in Maryland it is 1.35. As we reach the south, however, snakebite begins to present itself as more of a health issue. In Virginia it is some five times higher than in adjacent Maryland, with 5.49 bitten per 100,000 persons. Further south, in North Carolina, it becomes some 15 times higher than in Maryland, and three times higher than in Virginia.

The "Scientific Council" tries to justify its agenda in North Carolina by telling us that similar laws already exist in these northern states, and that North Carolina should sensibly follow their lead. And yet such a comparison is specious: snakebite is a *southern* problem. It is not now nor has it ever been a problem in the industrialized north. Moreover, North Carolina is also a comparatively much less developed state, with a large area statute (over 52,700 sq mi). And here we begin to see the first signs of the pointlessness of a law protecting a

dangerous and not uncommon predator. With the highest incidence of snakebite in the nation, where is the shortage of venomous snakes in North Carolina?

A popular myth (and one played upon by the "Scientific Council") is that killing (or catching) the snakes accounts for most snakebites. Therefore, to pass a law against killing and catching snakes will reduce snakebite. This is far from accurate. I can find no original source in the literature for this oft-repeated statement seen in tabloid venues. Russell (1983) remarks that of all reported bites by venomous species, probably at least 75% could be considered legitimate (i.e., non-interactive), while in other areas almost 100% will be legitimate. Snakebite remains first and foremost an accidental phenomenon. Most of these accidents occur near the home or in agriculture; they more rarely occur during hunting or hiking.

It must be conceded that of the annual 1100 bites, very few will result in death (about two every ten years in North Carolina; 7–15 overall U.S.). This is a fact that the "Scientific Council" makes a great deal of in its press reports, in order to justify the proposed law. And yet two mortalities every ten years is still about twice the number of deaths that have occurred over a similar period from rabies—and no one would think to suggest that rabies is not a public health problem. If 1100 rabid animal bites occurred on human beings in North Carolina every year, you can be sure the North Carolina Public Health Office, as well as the citizenry, would be in a panic. Contradicting the "Scientific Council," an illness need not end in death for it to be viably counterproductive to the lives of North Carolinians. And as any victim of pitviper bite will attest, snakebite is one of the ugliest things that can happen to you.

Snakebite is not merely a matter of showing up at a hospital and getting a shot of antivenom, and going home. If you survive the envenoming (and the antivenom, which is itself dangerous), depending on your case and the species, you can expect to be bedridden for many weeks, and will perhaps endure permanent disability. Intense pain, massive swelling, blistering, necrosis, gangrene and amputation and other disfigurement, permanent scarring (from surgical fasciotomy), muscle contracture, osteomyelitis, neurological deficits, kidney and liver damage are well documented. Every envenomed patient will show one or more of these symptoms. The antivenom itself may kill you (a case occurred in Brunswick County in 1977). Hospitalization costs to treat snakebite start at about $6000 per day. The victim of a severe timber rattlesnake bite can expect a minimum of 2–6 weeks in the hospital, and up to a year further recovery. Other patients require repeated hospitalization, and there may be seemingly endless operations to remove necrotic debris (sloughing) as it occurs, with plastic surgery required to correct local damage. Some persons never actually "get well" but endure disability all their lives. Many victims are rural people, who do not possess the means to deal with such costly medical expenses. But the intense suffering is not less than the horror of the ordeal. The council members do not consider this in their report, and give no indication of even being aware of it. Instead, they point to the remarkably low number of deaths, as if death were the only legitimately detrimental effect of snakebite.

The "Scientific Council" reveals a grave naiveté about what snakebite is, and how it occurs. Their law allows persons to "defend themselves if their lives are in danger," but any other means of "defense" is forbidden. If the snake is on your property and "not hurting anybody" you will just have to live with it, for you cannot legally kill it, or even catch it in order to move it away (nor will the state come and collect it for you, as we shall show). While you can "defend yourself" in a moment of confrontational danger, this is an unrealistic conception of how snakebite occurs: if you can see a snake, you are probably already out of danger. Warnings about "what to do" when you see a snake are mostly irrelevant to your survival.

It is just here that the "Scientific Council" goes astray: they imagine that like bear attack, snakebite involves a "confrontation sequence" between man and snake, wherein a snake/attacker physically confronts and threatens a human being, and the potential victim has time to reflect about his destiny and act accordingly. This is not how most snakebite happens. Snakebite happens *accidentally*—and so rapidly the victim may not even be aware of it until after the bite has occurred. The victim steps on the snake accidentally, through not seeing it; or puts his hands on its accidentally, or sits on it, of any of the myriad ways accidents occur placing man and snake in direct contact. Snakes are very well camouflaged and very difficult for the average person to see. A human victim has no time to decide whether or not his "life is in danger," since chances are he will *not see* the snake that bites him, and in many cases, not see it even after it has done so. This is why polyvalent (broad spectrum) antivenoms were developed to treat snakebite—because in most cases people do not see the assailant, and cannot correctly identify the species even if they do. The antivenom was developed to treat *all* snakebites in a given region, to account for this problem.

This brings us to a most important point. A human being does not kill (or catch to move) a snake because he fears his life in danger at the moment he sees the snake: *he kills the snake to prevent his life becoming endangered in the future when he may not see that particular snake or its offspring.*

Herpetology defines the pitviper (e.g., rattlesnake) as a "mobile ambusher" (Greene, 1997). Using crypsis (camouflage) the snake coils at a place favorable to its needs, or lies stretched out, in such a way as to escape detection. It is so good at escaping detection that the rodents and birds it feeds on can't see it. People can't see it either. Hence they step on it, or so near it, as to provoke it to strike. Snakes are small, difficult to detect animals that are impossible to avoid because it is only by accident that the two, human and snake, make contact. Hence, the *very presence* of a rattlesnake on or near someone's home or property, or near where persons walk, places those persons' lives in danger—and no "life-threatening confrontation" is necessary to produce this effect.

It is very difficult to tell a man or woman whose arm or leg has just "rotted off" from venom necrosis, or who has spent six months in and out of hospitals enduring corrective surgery, that they should not have killed the rattlesnake they saw crawl-

ing near their property a month (or year) before the bite occurred. A person whose son or daughter is lying in a morgue, or is permanently disfigured, is not readily susceptible to far-flung concepts about "reptile decline." The rattlesnake they saw crawling near their property, and did not kill out of fear of legal prosecution, may not have been the culprit—but if the snake was adult and female and it was in spring or summer, she was probably pregnant with 10 or more young that can reach 3 ft in length in a year's time. Today the snakes are in the woods next door, tomorrow they are in your yard beneath the shrubs where children are playing, or hiding in the flower bed where you are doing garden work. The saying, "the only dangerous snake is the one you don't see" is axiomatic. A venomous snake is a mobile bear-trap waiting to be stepped on.

What will the new law achieve? Will it spare the lives of snakes, or merely alienate a public already weary with government interference in their lives? If only the latter, faithful followers of previous protection regulations will learn to distrust the wisdom of a Wildlife Resources Commission that would place a rattlesnake's life over their own or that of their children (or family pet, to which a rattlesnake bite is quickly fatal). Furthermore, since wanton killing of vertebrate animals is already illegal in North Carolina (and this law is not presently enforced) and laws to prevent cruelty to animals exist also, the new law to protect rattlesnakes can serve no useful purpose.

Obviously, the law is unenforceable. Sensible people will simply disobey it—and keep their mouths shut afterwards ("shoot, shovel and shut up"). Insensible people (and there is an abundance of them) will do the opposite, and begin phoning state government every time they see a snake—*any kind of snake they mistake for a rattlesnake*. Because the government will not, of course, have the facilities to respond to the thousands and thousands of snake "nuisance calls" that will result from mistaken identity (there are over 40 native species of harmless and venomous snakes to confuse the public), a state policy of not answering snake nuisance calls will confirm a distrust of state government. Is distrust the message our state government wishes to send to North Carolinians?

Echoing the opinion of many North Carolinians who have deep reservations about this law, the author sent a letter to the North Carolina Wildlife Resources Commission (NCWRC), emphasizing his grave misgivings about the idea:

> Venomous snakes are my life's work. I have collected them in 35 countries and on five continents. These include the world's most dangerous species: king cobras, forest cobras, spitting cobras, mambas, kraits, gaboon vipers, fer-de-lance, bushmasters, and dozens of others. I have studied them, written about them, and, in accidents that were *always* avoidable, been bitten by them. Four times these bites were nearly fatal. Obviously I truly "love" snakes, or I wouldn't be in this kind of work. And yet my love of snakes has not turned me into such a fool as to want a live rattlesnake running loose in my yard, where it can bite my wife, children, and my pets! The thought that I cannot remove a rattlesnake from my property under penalty of law is abhorrent to me. The thought that if the state can be induced to remove the animal for me (they have no program for doing so), they must then *euthanize* (kill) it, is equally repugnant (the law does not allow the animals to be released). So when I hear a NCWRC "protection" advocate whose contact with venomous snakes is minimal at best, tell me that he thinks rattlesnakes are "*cool*" and for that reason alone ought to be protected, my hair curls to know that such people have somehow found themselves in positions of power over our lives.
>
> I would feel a sense of profound unease if I were the one responsible for passing this law. And yet somehow the climate has so altered in North Carolina that our government has no such conscience, nor sense of responsibility toward the people who live here. The law proposal is blatantly irresponsible in all aspects and the public cannot be expected to live by it. If the proponents of this law could experience snakebite for themselves, would they reconsider? They are not likely to have to. Spending most of their days on college campuses, living in concrete and condominiums, watching snakes run their paces on television and lulled into a dreamy stupor about a phenomenon of nature they have had little contact with, they are not in a position to regulate the lives of those who encounter venomous snakes on a frequent basis, such as hunters, farmers, and other rural people. Nor are they competent to regulate the venomous snake researcher or other person who works with venomous snakes on a daily basis. They simply do not know enough about it, and cannot learn enough in the few hours or days they are willing to devote to it, to make an informed decision. Probably the majority of these "protection" advocates have never even seen a live rattlesnake in the field and would have no idea about how to go about finding one, or catching one, or taking care of one in captivity. We can be equally certain that, for all their vaunted "training," the 200 or so state wildlife agents that will be put on the job to enforce this law have not the least inkling of how to deal with dangerous snakes they will encounter, how to find them (for the snakes will not wait on law enforcement to arrive), or how to collect them without hurting them when the situation requires them to do so. Imagine a pair of panicking state employees attacking a poor reptile with six foot metal tongs, breaking its neck and back in order to cram it hastily into a plastic trash can before hauling it off to be killed (outside of the public's eye), and you have constructed a fair picture of what will happen on a "nuisance" rattlesnake call once the state becomes involved. Perhaps it is just as well that such nuisance calls will rarely be answered by the state, once the state realizes the true extent of the public's snake identification skills, and the mess they have created for themselves.

What is the hidden agenda of the "Scientific Council" that it would ignore these issues in favor of a ruling that our police cannot enforce, and that our judicial system cannot countenance? Is this a benign, if misguided, effort to "protect snakes" as its inventors assert? Who are the members of the "Scientific Council" and what do they do? In this paper we take a close look at the self-dubbed "Scientific Council" and its membership, and delve to the bottom of its real purposes and aims. You will learn that this regulation has little to do with protecting snakes, just as it has nothing to do with protecting the rights and lives of North Carolina citizens. You will learn that it is full of hypocrisy, exclusions and loopholes. You will learn of a confused North Carolina Nongame Office that would like to shut down the hobbyist collecting trade in all native reptiles and amphibians, but which cannot even grossly guess how many examples of any species are taken by hobbyists in any given year, owing to their long opposition to a sensible quota or "bag limit" on take. You will learn that the new law is guided by a federal impetus that is itself without scientific verification, an attempt to make a plan devised for northern states "fit" a southern state, where it is not applicable. You will learn that federal protection of these species and others, when granted, will bring revenue to the North Carolina Nongame Office through federal appropriations (through the ESA). Granting that the primary goal of any bureaucracy is to expand its power base, we will show that there are strong

incentives in the pipeline for this state government and others to comply with federal edicts from a monstrously powerful U.S. Fish and Wildlife Service (USFWS), which administers the ESA. We will show how the problems generated by this law will justify bureaucratic budget increases, hiring of new agents and personnel etc., enabling its advocates and creators to rise higher on the bureaucratic pyramid. You will learn that there is *money* in the protection of native wildlife (far more money, in fact, than in selling it), and that job security is directly proportionate to the number of species that the state is charged to "protect." And you will learn also that the name "Scientific Council" is a misnomer; that its goals have nothing to do with science, and that, indeed, it has not even employed science in order to draw its conclusions.

Who will be affected?

Snakes have many uses. They serve purposes in medical research and pharmaceuticals; their body parts are used as clothing (as for shoes) and meat; they are displayed educationally to the public, and purchased by zoos and fanciers who maintain them alive in terrariums. In short, snakes intrigue people from many different walks of life, from hobbyists to artisans to scientists. Snakes have been used in a sustainable way in the U.S. since its birth as a nation. Like other animals, snakes are "farmed" (herpetoculture).

Just what does the proposed law do? In brief, it bans *all* use of these animals by the public. Put plainly, you can't kill one, buy one, sell one, study one, keep one alive in captivity, and you can't acquire one from out of state. You cannot possess any body part of one (e.g., skins, shoes or other products made from skins). You cannot serve the meat in a restaurant, or buy it in a grocery store. You cannot possess the venom of one (if you are a researcher, or in the business of providing such venoms to researchers). If you are in business to reproduce these snakes in captivity (e.g., for commercial sale to medical research or zoos or other venues), you have to go out of business. You cannot move the animal off your property to avoid having to kill it, for if you are caught in possession of it, you will be accused of being a trafficker in endangered species (a very serious offence). You cannot rescue one from the roadbed in order to save its life. If you kill one, you have to "prove" that it was in self-defense. In other words, the rattlesnakes you see crawling about your yard or property must be left in place until they become a demonstrable threat. And because the "onus of proof" is being placed on the public "to the extent possible"—you have to prove your innocence before a court of law.

Advocates of this Orwellian ruling have tried to trivialize the importance of this last factor, realizing that it might scare the public. The public has good reason to be scared.

Note the case of Frank J. (Jerry) Christman of Athens, Ohio. I quote from a recent *Washington Daily News*, Fred Bonner's column, "Carolina Outdoor":

> According to Leeann Potts, news anchor with radio station WSEO in Nelsonville, Ohio, a local logger has been arrested and charged with possession of an endangered species, a rattlesnake!

Back in the summer of 1998 the snake was accidentally killed by a falling tree in the course of a logging operation. Christman and his son found the dead timber rattler after the tree fell. They then took photos of the snake and placed it in their truck. For a couple of days they hauled the snake around showing it off to people, then disposed of the carcass. The photos remained in circulation for some time after that.

Evidently some local environmentalists picked up on the killing of this snake and were incensed at the fact that the logger was in possession of the dead reptile. Under the Ohio endangered species law, this was illegal!

Athens County Prosecutor, Lisa Eliason, who is running for state office this fall, evidently intends to make an example of Mr. Christman. The case is scheduled to go to court on the 16th of March, 2000, in Athens. If Christman is found guilty of possession of an endangered species, he stands to have a substantial fine and some jail time levied on him. All this because he picked up a dead rattlesnake and, very unwisely, showed it off.

It makes a pretty good case in favor of the old "Shoot, Shovel, and Shut Up" idea having to do with endangered species, doesn't it?

We can see how this will affect the average citizen, who has not the skills to distinguish a venomous species from one of the more than 35 other native harmless ones, or the six venomous species from each other. He will be in a double quandary—damned if he kills the animal (arrested), and damned if he doesn't (gets bitten). But consider the effect upon the consumer. If you buy a pair of boots (or purse, wallet, watchband, clothes) while visiting out of state, and the leather in those items contains snakeskin from any of the four protected species, you stand to find yourself in Mr. Christman's position. You may be only passing through North Carolina on your way home to another state, but if you possess the banned items you stand to be prosecuted. U.S. customs may strip you of such items when entering a port in North Carolina from another country (e.g., through Raleigh or Charlotte), even though you may have purchased the product abroad. Naturally you do not know what species the skin came from. But even if it originated with a farm-raised snake (or legally obtained snake) of the same species in another U.S. state, you will still be prosecuted for trafficking in an endangered species. If you win in court (most will resort to "plea bargain" and cede an apparent "victory" to the state) you will still be out lawyer's fees, time, and anxiety. Even the shoe dealer (purse or watch band seller) will have be wary of what product he orders and sells, and competent at taxonomy. Since the law makes no distinction for clothing made from farm-raised skins, the very fact of your owning such articles makes you guilty of being a "trafficker." This departure from "innocent until proven guilty" is an attempt at "ease of enforcement." That is, it is an attempt to make an unwieldy law *enforceable*. It is nothing less than a resurrection of the Napoleonic Code.

Who will be affected? Everyone. You need not be bitten by a snake to qualify. You need not ever have killed a snake, or kept one in captivity. You may not care about snakes one way or the other. But your tax dollars (and/or money gathered from fishing and hunting licenses and equipment, which is how North Carolina Nongame Management is mostly supported) will be going towards a program that will increase in size yearly in order to keep up with the "new problems" that the laws themselves will generate: namely, the expenses of law

enforcement as hitherto innocent persons are turned into criminals, and the expensive machinations of prosecution. And agents who are supposed to be out "protecting" wildlife will instead find themselves sitting for days in courtroom ceremonies, while other state-paid hirelings replace them in the field.

And here is a reverse scenario: lawsuits filed *against* the state for damages when authorities fail to answer a snake call, or cannot find the snake in question when they do. "I could have killed it when it was *there*," moans the unlucky father of a bitten child. "I could have. . . . But the state wouldn't let me. . . . Then by the time their agents arrived, it was gone. Now three months later it has killed my son." This is not an unrealistic picture. It might not even have been the same snake that was the culprit, but the implications are the same: the state is to blame. "Four times I telephoned the agents to come back," the man testifies. "They said they couldn't find it. Finally they just wouldn't come back anymore no matter how much I phoned." Such a person would surely have a good case against the state. In Virginia, a woman bitten by a copperhead in a state park sued the state of Virginia and won a large settlement in court (pers. com., V. Rouch).

The NCWRC, which evidently has no qualms about passing this law, will make no effort to go about snake chasing once the deluge of bogus calls becomes apparent to them. For it is safe to say that thousands of snakes are seen every day in North Carolina, and while fewer than a hundred will actually be rattlesnakes, the majority will be misidentified as such. NCWRC simply do not have enough personnel, and even doubling the present number could not keep up. During the rabies epidemic of 1996–98, state and local animal control authorities gave up answering the hundreds of calls they received each day, and simply substituted a recorded message acknowledging that while rabies was certainly in the area, they regretted they could no longer investigate rabid animal reports, or pick up rabid animals. Even a rabies-ridden raccoon so maddened that it was attacking a block of stone in a person's front yard could not provoke them come and collect the animal (*Wilmington Morning Star*, June 28, 1996).

But protecting venomous snakes in a state *full* of venomous snakes amounts to a permanent "rabies epidemic" year in and year out. For while nobody contracted rabies in the last epidemic, North Carolina has on average 1100 venomous snakebites to contend with *every year*, the largest number of any state in the nation. Most victims will not die, that is safe to say; but how many will endure massive medical expenses, and permanent disfigurement and disability, we may soon learn as award damages against the state mount up in our courtrooms and insurance companies start putting in their own complaints about the NCWRC folly.

We must question why, suddenly, overnight, the state of things has so altered in North Carolina that laws like these have become "urgent" for the well-being of North Carolina herptiles. Is this the result of a drastic change in our physical environment, or *a change in political climate*? Why have venomous snakes (and all snakes), which have been killed by human beings since time immemorial, suddenly become threatened by a human persecution that has gone on for thousands of years? Is the pet trade to blame, as the "Scientific Council" keeps emphasizing. Who *are* the "environmentally dangerous commercial traders, traffickers, and reptile persecutors" that exist unseen amongst us, ravaging the last of the remaining wildlife in our hills and streams? We are always reading about these individuals in the newspapers (courtesy mouthpieces of the USFWS). It is time to take a serious look at what part they play, and what actual damage they do. In short, who are these people that state and federal authorities would have us demonize?

Here's the big secret. *They are you and I.* The blood pressure medicine you are taking may have been inspired by snake venom.

The hidden agenda of the "Scientific Council" is simple: They are "preservationists," not conservationists. They do not view wildlife as a *resource* at all. They do not view you, a common citizen, as having personal rights within your environment—not even your life has any value in their great dream. They view wildlife as an isolated entity to be kept in a museum jar, untouched on a pedestal and behind a guide rope they alone control, and to which they sell you tickets. They talk endlessly about wanting to "save" wildlife, but for whom are they saving it? Certainly not you. They want to make wildlife off limits to everybody but themselves and their friends, as we shall show in further pages.

What the "Scientific Council" really is, and what they really want but aren't saying

The present environmental model being adopted and implemented by the USFWS in the United States is in essence *communistic* and *totalitarian*. The "ownership of nature" is implied as belonging to all people equally. An omniscient but unspecified "public" is given a share in nature as a whole, and yet forbidden to make use of that share in part. This model is conducive to a highly regimented but ultimately disinterested (in nature) urban worker society, such as existed in a defunct USSR. In this model, while everyone is told that they own a part of nature, that part is not convertible to usable currency. Its use as a resource has been taken away from the individual and given to the masses. Since the masses have no vested interest in wildlife, they do not miss interacting with it, with special interest groups content to point fingers at those who do (e.g., PETA). People who *do* have an interest in wildlife, however, are expressly forbidden to touch it without the consent of Nature's representatives in power. Like the king's hunting grounds in feudal times, only the government or its approved barons (i.e., institutional embodiments, called "legitimate") are to be granted permission to make use of the land. Physical interaction is forbidden to the extent possible and the "resource" is discouraged except to certain state or federally connected individuals who "qualify." The rest of the public is considered "illegitimate," that is, they do not qualify. The taxpayer pays to be told what to do.

This is the principal intent of the New Environmental Order as envisioned by growing factions in the USFWS. However, its communistic-totalitarian methodology makes it incompatible with a democratic society. The public resents the loss of its individual rights. And the public is also not so dumb as to not

realize that an environment preserved "for everyone" but usable by *no one* is not of much use to anyone.

In North Carolina recently we were thrown face to face with this type of indoctrination for the first time. In its failed 1998 proposal "Report of the Amphibian and Reptile Scientific Council on Commercial Trade" the "Scientific Council" attempted to ban from the public's access no less than *148 North Carolina native species/subspecies* (there are a total of about 156 in the state). The pet trade hysteria had reached certain persons employed by State of North Carolina and, joining forces with USFWS employees under a banner, and calling themselves the "Scientific Council," they reacted emotionally against it. In fact, the "Scientific Council" did not form as a league of scientists with herpetological interests: the "Scientific Council" was born as a reactionary group with political agendas. Their intention was to do nothing less than save our state from the *plague* of commercial wildlife exploitation that had apparently overwhelmed our once vast and beautiful Carolina wildernesses. It seemed like an admirable idea. There was only one problem: there was no plague.

In its opening statements, the "Scientific Council" claims to have been "charged to assess":

> (1) The potential susceptibility of individual species and populations to stress from commercial collecting activities
> (2) The suitability (not desirability) of individual species as products of the commercial pet trade.
> (3) To make recommendations on what such commercial activities should be allowed.

They go on to note that "hard data" to support these evaluations is present to varying degrees for some species, but lacking for others. And yet nowhere in the document is any "hard data" shown to confirm the report's assertions, and the only references or citations present in the report are of two field guides, neither of which relate to commercial trade. In short, they felt the report, which would not have been good enough for a scientific journal, was good enough for lawmakers.

Standard scientific protocol requires that a paper be formally presented to and/or refereed by a circle of one's peers. This can take several forms: one, by a review process usually done anonymously, so as to be without bias, by the editorial board of a recognized scientific journal. The paper will then be published, enabling a wider scientific audience to review it. But if a paper does not take this route (i.e., is not peer reviewed) then at least it must be *published somewhere*, and circulated for review by other scientists (e.g., in the CHS *Bulletin*) if it is to earn its validity. Finally, if it is to be recognized as accurate, a confirmation by other *noncolleagues* should appear eventually in separate literature.

To date the "Scientific Council" have not published a single one of their results on this matter in any known journal, and they cannot provide the public any scientifically legitimate articles confirming their views. The "Scientific Council" could not have gotten as far as they have without cronyism (i.e., their inside government connections).

These connections were (and are) considerable. The 1998 proposal informed us that the agency which *invited* the "Scientific Council" report was the North Carolina Nongame Wildlife Advisory Committee. However, a number of the Nongame Advisory Committee members were also on the same 11-member "Scientific Council" that prepared the proposal. At least three members were employed by the state-run North Carolina Museum of Natural Sciences, including its Chairman, Alvin L. Braswell (with the others either colleagues or answerable to him at their jobs). Two members, including the chairman of the Nongame Advisory Committee, were directly employed by the U.S. Fish and Wildlife Service (one of the law enforcement agencies directly benefiting from an increased power base in North Carolina if the laws were passed). In sum, the "Scientific Council" report begins with falsehood. The "Scientific Council" was not "charged to assess" anything—they, together with the Nongame Advisory Committee and state and federal government merely *concocted the proposal themselves*! Affecting the colors of an independent and unbiased science, the "Scientific Council" was (and is) a shared entity with state and federal government! They asked themselves for the report and they answered themselves with the self-same report.

Most scientists agree that *bias* is the single greatest obstacle to be overcome in any scientific experiment. Indeed, the majority of all scientific experiment is simply an endeavor to reduce the latent biases present in any scientific idea. Experiments are designed first and foremost to eliminate bias, otherwise a true picture cannot be shown. If an unbiased experiment is not done, it doesn't qualify as science. Being born not within science but within the biased arena of politics, the "Scientific Council" is its own greatest argument against itself.

But the "Scientific Council" has degenerated even further. It does not use science in any form! Performing no experiments and only ad hoc surveys, its members do not even bother submitting any documents of "science" to the government agencies involved. Why should they? *They are the government agencies themselves*. And thus it is to its own ears in state government that the "Scientific Council" preaches its "science."

Meanwhile, in Washington

It may or may not shock you, depending on your opinion of science, that a group touting itself as an *unbiased independent* "Scientific Council" should be composed largely of employees of state and federal government (USFWS). Since 75% of all money for NCWRC comes from federal sources (Pittman-Robinson Act [hunting] and Dingle-Johnson Act [fishing]), the motivation to obey federal dictates is considerable in North Carolina. Is it merely a coincidence that U.S. Fish and Wildlife agents sit in abundance on this panel otherwise composed almost entirely of state employees?

Moreover, the proposed state regulation has an even more blatant federal connection: CITES (Convention on the International Trade in Endangered Species). The USFWS is in fact at this moment in the process of *a national drive to add the timber rattlesnake to the list of species under CITES control*.

USFWS is petitioning scientists (and the public sentiment) for support. Their propaganda on this issue can be seen in hobbyist pet magazines and on the internet (http://international.fws.gov/cop11/crotalus.html).

I am boldly calling this "propaganda" and not merely "publicity" because it meets Webster's definition of the word in its most derogatory sense: "any systematic, widespread, deliberate indoctrination or plan for such indoctrination . . . connoting deception and distortion." The extent of this distortion I shall show in further sections.

For those readers still possessing faith in the wisdom of CITES, let's look at some of the putatively "endangered" species already under their control. And bear in mind, there are some 1300 of them. . . .

In Central and South America we have the *terciopelo* (*Bothrops asper*), which most herpetologists have long known as *the most prolific and common pitviper in Central America* (Solorzano and Cerdas, 1989). A snake so inordinately numerous that it can well be considered, not only one of the most common venomous snakes, but one of the most common of all snake species. Its distribution range is huge, occupying at least 11 countries. Costa Rica is currently overrun with the animals: *terciopelos* have taken over abandoned farmlands and are turning up in people's houses and even their beds! Statistically, this snake (with its *Bothrops* congeners) causes more bites than any other pitviper in the New World. This species has been on CITES Appendix 2 since the early 1990s. It was no less common then than today.

Supporters of this ruling will argue that the CITES status is only applicable when this snake is exported from Honduras. It should be mentioned in this context that in Honduras the *terciopelo* is no less numerous than elsewhere. By the most conservative estimate the population of this snake in Honduras must *exceed the human population by at least three to one.* There are literally millions of these snakes in Honduras and thousands of them are killed by residents every day. This is not an exaggeration. A single female *terciopelo* produces upwards of 70 young and any square kilometer of wilderness or agriculture can support as many as 1,000 adult individuals. CITES cannot refute these figures. This is because they *have* no figures. They never did. They didn't even bother to research the matter before setting it to law.

These are not the isolated "goofs" of an otherwise sensible program. Also on the CITES list are four other extremely common *Bothrops* (since divided into other genera) from Honduras, and some extremely common coral snakes, most distributed throughout Central America with ranges comparable in size to *B. asper*. One of these, *Porthidium* (*Bothrops*) *nasutum* cannot number less than ten million individuals in Honduras alone. Indeed, at least 75% of all the other "endangered" snakes on the CITES list fit a similar profile. In the CITES imagination, even the mussurana (*Clelia clelia*) is an endangered species! This widespread snake likely outnumbers all living persons in at least three of the South American countries to which it is native (Surinam, Guyana, French Guiana). None of these animals, by the way, are popular pet trade items and never have been, with total numbers imported into the U.S. each year averaging less than 100 for each species.

The CITES list is over 1300 species long (and growing). . . . We may conclude that no scientific studies are required to put a species on its list, for if there were, the majority of the species that are on the list would not be there. The name CITES is a misnomer: it may be a convention on trade, but it has little to do with trade in *endangered* species, per se, these being far in the minority. What would an accurate, scientific reappraisal of CITES mean to CITES? It would mean a CITES of weakened importance.

A weakened CITES is clearly not in the interests of USFWS. We must assume, however emotionally attached we are to the idea of protecting wildlife, that CITES, like any bureaucracy, cannot survive without two ingredients: power and money. The more species they are charged to "protect," the more power they have to get money to justify doing the job. Their job consists mainly in vending their stamps to the wildlife agencies abroad, who in turn sell them to the wildlife exporter. As a result of which they also exercise considerable input over local regulations in these foreign countries. The bigger and more inclusive the CITES list, the more countries over which they can exercise influence. It's really a very simple idea: the English once did the same thing with tea sent to the American colonies. You pay our tax (buy the stamps) and we will allow you to import or export the product.

Third world countries love it: it means American money funneled into their own wildlife departments. At home in America, USFWS loves it for the same reason: you pay for their jobs. Does it perform a useful function? In some ways, yes. It increases the value of wildlife (you have to be able to afford to buy the stamp) and because of the higher price tag, this creates a sense of value for the exported (and imported) live animal. Consequently, low dollar animals (like terciopelos) are better looked after than they would have been otherwise.

The evil of CITES is much the same one afflicting the "Scientific Council": it uses the "Endangered Species" concept in a *covert* way (to achieve other ends). It is dishonest at its roots, and provides a pathologically inefficient solution to a greater problem. For nowhere in the world is the pet animal trade a *significant* cause for herptile decline. Herptiles are declining at the same rate in those countries that *do not* export them as in the countries that do: declining in direct proportion to the decrease in habitat.

But this is of no concern to a growing bureaucratic organism that *depends* on endangered species for its own growth and well-being. It is in the vested interest of CITES to have endangered species, and if no endangered species can be found, then (1) to ascribe (according the Langmuir definition) a maximum effect produced by a causative agent of barely detectible intensity (e.g., the effect of commercial trade); (2) to claim great accuracy in its measurements (e.g., population surveys even when no such surveys exist); (3) to offer ad hoc explanations (e.g., invent a science to fit the observations, such as, "the applicable species is being impacted by commercial trade") and ignore facts that do not agree with preconceived

notions. This is the scientific methodology of CITES (and USFWS) in a nutshell.

We pay for CITES; consequently, CITES has certain fears. If the CITES list of endangered species remains static, and no new species are added from year to year, the organization may be affected by cutbacks: i.e., required to do the old job with less funding. This is the worst thing that can happen to a bureaucratic entity; it means *downsizing*. Less workers, less bosses, less pay, less power domestically and abroad.

But if the list of species to protect is *ever-growing*, then the money must grow also to keep up. A growing bureaucracy means job security. The list of tasks (species to be protected) may be allowed to diminish a little here or there, and these can be credited as successes (giving the impression that something is being "accomplished," always heavily publicized), but the inflexible order remains: *growth must continue overall.*

This is the bureaucratic equation, as is no secret to anybody. It is also the equation of parasitism and cancer: proliferate at all costs to the host. The parasite's lifeline is money. Cut off the money, kill the parasite. Because the parasite fears this will happen if the host "wises up" to the situation and realizes he is being taken for a ride, the parasite must work to convince the host he is necessary to the host's survival. And this is the role of CITES and the ESA and the propaganda board in charge of publicity for these departments: to promote fear of an unseen "enemy" from which the department alone is qualified to protect the public. Like a Mafia "protection racket," these organizations thrive on keeping the public afraid. Like the McCarthyists of half a century ago, they have evolved a propaganda network to do so.

CITES and the ESA are the mouthpiece by which the hysteria is spread. The OMA (the USFWS Office of Management Authority) in charge of propaganda, leaks the news reports to the media insuring that we will have continued faith in their necessity. From them we learn such choice divisive tidbits and semantical abuses as "smuggling of endangered wildlife has reached an all-time high, having a greater pound-for-pound dollar value than cocaine." We learn from USFWS mouthpieces that "even many so-called captive born animals are probably smuggled" and so there is no certainty that even legitimately captive propagated animals are not connected to the nefarious smuggling trade, whereby animals are stuffed into suitcases and shunted all over the world to the evil buyers who profit from them and live in gigantic mansions and secret underground installations paid for with the bloodshed of helpless little animals. And because instances of smuggling do occur, always widely publicized because of their anomalous nature, we will be led to believe that "for every one offender we catch there are hundred of others getting away scot-free" and "if we only had more money we could stop them. . . ." Ad infinitum. We will go on hearing these reports so long as there is a press willing to echo them.

But what we will not hear is that there are not more than 50 such individuals all told in the U.S. and most of them below the age of 25. And that they do it as much for a dare as for profit, and that they can scarcely pay for their plane tickets with the money they make from it. And we will not hear that it costs more money to police and chase these offenders than the dollars value of the animals. And that *six million dollars* were spent chasing Tom Crutchfield for snakes valued at less than one-fiftieth of that figure. And we will not hear that the forests from which the smuggled snakes were collected probably no longer exist because they have been slashed and burned, and that if the animals had not found their way to caring owners (i.e., the smugglers) they would have been slaughtered as pests or eaten on somebody's dinner table. No, we will not hear these things. And least of all will we be informed that the *six million dollars* spent chasing a single lawbreaker (who would not have been considered a lawbreaker before the existence of CITES, that is, prior to 1973) could better have been spent *buying* the forest from which the snakes came, preventing its destruction (along with the hundreds of other species that lived there) and then donating it to the impoverished country as a national park. And we will not hear this sad fact either: that with the *five hundred million dollars* absorbed by the USFWS folly each year (making five billion dollars in ten years) the forests of the earth might be saved and our own domestic problems with declining species might be solved once and for all, rendering the USFWS technically obsolete.

How the timber rattlesnake got to Washington

There is no precedent for any viperine serpent becoming extinct in the New World during this century. This is important to note. A scientific hypothesis, if it is scientific, should have a precedent, lest it meet Langmuir's fourth definition of pathological science ("a fantastic theory that contradicts previous experience").

Contradicting all previous experience, we read that the timber rattlesnake is now on the brink of total extinction. No mere insular population isolated on tiny island (e.g., *Bothrops insularis*), but a species whose distribution comprises almost half the land mass of the continental United States (excluding Alaska). And yet what is even more unparalleled about this extinction is that it is occurring not only from the loss of a specific habitat, *but within the habitat itself*. How has this tragedy happened? Moreover, under our very noses, while larger, rarer species requiring a great deal more habitat (like bear and alligators) persist among us, and in some cases even thrive? In this modern Tulipomania, credulous scientists from all over the world are coming together to meet in Kenya to discuss a way to save these snakes that, as Greene (1997) describes them, are "emblematic of American freedom and independence."

It is factual that throughout the history of human popular delusions, some of the greatest minds of the epoch have been the most seduced, and the greatest seducers. In keeping with historical precedent, we see the great minds pitching in with the poorest, the cries of their greater intelligence and influence enabling them to sell more tickets to the bandwagon ride, whose last stop is, after all, at nothing more useful than a witch-burning. The timber rattlesnake folly is only one tiny paragraph in the great and awful book of human folly which yet remains to be written. What seems alone certain is that

when mobs of men gather together behind a cause, reason gets lost in the shuffle. Harry Greene (1997) writes about the timber rattlesnake's "decline":

> . . . these . . . velvety creatures are endangered or already extinct throughout their former range. Their shockingly rapid decline . . . [resulted from] the widespread persecution of those snakes in late nineteenth and twentieth centuries that removed tens of thousands of them from a significant chunk of the continent. . . . In New Jersey, New York and Massachusetts about four thousand Timber Rattlers were sold over a thirty-year period. One bounty hunter alone took thousands from New York in the 1960s, and overall populations in that state have been reduced by 60 percent during this century. . . . Pennsylvania still permits sport hunting of the species, with full knowledge that 75 percent of the dens in the state are in jeopardy of total extinction.

In this one passage Greene (probably summarizing from Brown [1993]) has managed to emulate all the major symptoms seen in pathological science. Lending maximum effect to causative agents of barely detectable intensity (4000 timber rattlesnakes sold over a 30-year period amounts to only about 133 per year; probably more than 4000 are killed on roads during any given summer in New York alone); providing fantastic and misleading contradictions to previous experience ("endangered or already extinct *throughout* their former range") claiming great accuracy of measurement ("reduced by 60 percent during this century"—as if we knew what the populations of timber rattlesnakes were a century ago, and are now; "75 percent of the dens in the state are in jeopardy of total extinction"—by what superhuman method has he or his informants determined this in a state of 49,000 sq mi?); trivializing the effects of habitat loss in order to exaggerate the more spectacular and eye-catching aspects of den exploitation, as though sheer persecution had caused their decline; and finally, offering us no solution of where (in what habitat) to put the excess rattlesnakes if we were somehow enabled by a miracle to restore them to the previous populations that he implies (by a fantastic theory) we have at some point in history accurately recorded.

Ultimately the argument becomes self-refuting, for while we are led to believe that the rattlesnakes have so declined that they are on the brink of extinction, we are told (in a later paragraph) that the meat is still sold in a fancy restaurant in Washington, D.C., and that Pennsylvania still permits sport hunting of the species, suggesting that the rate of encounter has not yet plummeted so far that people aren't still finding these common rattlers despite his argument that they are extinct or disappearing. He tells us that in New York the population has been reduced by 60 percent in this century, leaving the attentive reader (who has not been boondoggled into accepting the extinction idea) to wonder what the population of these snakes was a hundred years ago. By this estimate, if there were say, a million of them in New York in 1900 (and there may well have been) then there must still be no less than 400,000 of them there now (a pretty healthy number!). Claiming great accuracy of measurement, the writer leads us to believe that a dozen field-tripping herpetologists (his informants listed in the citations) wandering in 29 states (a land area of 1,200,000 sq mi) have been able to peer to the bottom of every rock crevice (the breadth of one's wrist, extending dozens of meters below the surface in a myriad of directions) in order to count every den; beneath every boulder and into every stump hole and root system, and more amazingly, actually tabulate the numbers of whatever snakes are wintering inside them. And somehow discounting in all this, the enormous body of information that still shows timber rattlesnakes to be plentiful enough that any first year herpetology student has little trouble going out and finding one for whatever experiment he chooses, and the religious snake handlers still dance with them on their heads, and dealers still have plenty for sale, and hundreds if not thousands of people still go on being bitten by them from sheer accident.

And what is the reason given for the snake's disappearance? Because common people have nothing better to do all winter but climb mountains and gas and dynamite rattlesnake dens for fun. To be sure it happens, but only when you ascribe a maximum effect to a causative agent of barely detectable intensity can you make anything of it. And how will the Extinction Prophets save face when in ten years the extinction prediction does not happen? Fabricate a reason, of course. Pathological science is the science of fabrication, not discovery. It is a degenerating program.

Now CITES is all ears for this type of info, and when it comes from the mouth of a great herpetologist like Greene. . . . He believes it, why shouldn't we? Only let's not look too closely and spot the illogic of it all. Four thousand rattlesnakes may seem like a lot of rattlesnakes; but when you consider they came from three states (totaling 150,000 sq mi) over a 30-year period, it is just not much of a harvest. Over that same period there were *several hundred thousand more born.* More than 4000 bears were shot as game in those 30 years, and am I to believe there are fewer rattlesnakes than bear? Harvests of white-tailed deer were in the tens of millions, and can we be at all certain that there are less timber rattlesnakes than deer in these states, or that rattlesnakes depend on large dens to the extent portrayed? Compare to Berish (1998) who concluded that over 700 *C. adamanteus* (and *C. horridus*) per annum was an insignificant harvest in North Florida/ South Georgia, alone (only about 10,000 sq mi, much of it developed; see further sections).

Obviously Harry Greene *loves* rattlesnakes and his ire is stirred at the thought of the barbaric attitudes of human beings toward this elite creature. And rattlesnakes have certainly "declined" in New York and in other states over the past century just as he says they have (although not from the reasons he gives). But no timber rattlesnake extinction event has yet happened *in any state*; indeed, extinction cannot even be proven (albeit it may have occurred) in the outermost fringes of its range. To suggest they are nearing extinction *throughout* their range is to ignore some pretty big obstacles preventing it, not the least of which is the sheer size and inaccessibility of many of the localities where these snakes are found. Fly over the Appalachian mountains in an airplane and you will wonder if you are still in the U.S. or in some as yet unexplored world. Attempt to hike across them and (if you do not die) you will wonder than any person could ever succeed in making the merest dent in the populations of these snakes. Given the

flimsy reasons for this supposed "extinction" (den exploitation), the most deliberate effort to eradicate the timber rattlesnake could not possibly succeed. As Greene himself concedes, bounties were offered for decades in some states and local organizations promoted hunts as commercial activities. What this suggests is the extreme *resilience* of this invisible predator in the face of wide-scale deliberate persecution—a kind of persecution that is very much reduced in the modern day. (It has been replaced by a phenomenon far more menacing: a bounty paid on the habitat itself; see further sections.)

Greene's alarm is understandable. But in minimizing the more pressing causes of extinction in all creatures (he affords urban and agricultural development a scant sentence in this discussion) we are led to believe, whether intentionally or not, that it is deliberate persecution that is the problem, and ending this persecution is the cure.

Let's look at the CITES list for 1995 (still being issued to the public as of this writing). Note that there are no North American venomus species of snake on the list. (Only the Latin American *Crotalus durissus* is represented among rattlesnakes; a widespread and common species rarely exported to the U.S. [same nonlogic as for *Bothrops asper*]). Of the roughly 30 kinds of rattlesnakes in North America, CITES now intends to take under its "protective wing" the *most common and widespread of all North American rattlers*, the timber rattlesnake (*Crotalus horridus*). This rattler occurs in no fewer than 29 states—a range equal to roughly half the land mass of the nation. In Kentucky alone there are probably not less than 200,000 rattlers; and even in New York (a state of 49,000 sq mi), if they do not exceed 50,000 the rate of encounter would be so low that no one could ever find one (and they can and do find them, very easily). And yet claiming great accuracy of measurement, what pathological science does not see does not count; the effect is of a magnitude that remains close to the limit of detectability. The scientist does not find rattlesnakes for some unknown (to him) reason on the days he goes looking, and assumes from this that there are no rattlesnakes, and judges falsely from his failure. If this "intuitive" snake-survey method were workable, I would have to conclude that the American opossum is nearing extinction as well, since in all my years walking in the North Carolina woods I have only seen one or two (their carcasses on the roadbed, however, would soon disprove me). We might ask these supernaturally gifted herpetologists how many opossums they saw on their field trips into timber rattlesnake country, or how many foxes, and ask them to give us their expert opinion on their "decline" too!

Now let's turn our camera back to North Carolina and the "Scientific Council," whose membership, composed of USFWS agents and state-paid employees, is working assiduously to "protect" these rattlers on the smaller scale. The chance to "protect" a species of venomous snake in eastern North America is so outrageously lovely to many herpetologists that it tantalizes even hardened scientists into imbecilic support. "At last!" they rejoice, and patting themselves on the back as they go, "We are finally getting somewhere! And next we'll stop the disgusting rattler round-ups in Georgia, and from there, Texas! We will save the whole genus!" This is a very misty eyed view that is soon to get gloomier when they realize that they are not protecting the species from anybody but themselves, for while nobody else will obey their inane law, their institutional affiliations will require they get a special permit every time they want to collect or study one, or import one from another state, and all the real troubles facing the snakes will continue as before, proliferating unhindered while they sit holding their little nub's worth of "protection" and feeling curiously unproud suddenly.

The question must finally emerge: why the timber rattlesnake, of all rattlesnakes? To be sure there are more validly threatened species than *C. horridus* out there, that would make more sense to be on CITES (like the little ridgenose rattlesnake, *Crotalus willardi*). Even the eastern diamondback, found in only five states, as opposed to 29, is a better canditate for CITES. Be reminded that we are in the world of politics now, not science. Common sense—logic—has no currency; it is only *power* that has validity here. What power would *C. willardi* give CITES? It is only found in one state and adequately protected by local law. And unlike the timber rattlesnake the eastern diamondback has not yet attained "endangered" status in any state. Thus is it the timber rattler that is "ripe" for the picking. And *found in no less than 29 states*, it is this snake that is most coveted by CITES and its brother the ESA.

The more states involved, the more power to CITES. And CITES being the stepping stone to the already gigantically powerful ESA, this will mean *power* to dictate who does what not only with the snakes, but with the land the snakes inhabit. This means federal control of an animal formerly only under state control. This cuts the federal government in on a big 29-state pie!

This means more federal agents in your state; and in each of the 29 affected states. And even if they add only five new agents to each of these states to police the five tattooed rattlesnake collectors living there, or the 20 teenage readers of *Reptiles* Magazine, that's still 145 agents *more* than the 875 total they have now: a nice round increase in personnel. And surely worth a proportionately bigger budget to take care of them (at the current budget of just over half a million dollars per agent). And federal agents, I should remind the reader, are not biologists. They are gun-toting policemen.

And so we can see why has CITES has picked *C. horridus* to "protect." We have a pathological science to back them up; and we have huge monetary incentives going to federal and state *police* agencies. Granted there are a dozen much more technically "endangered" snakes in North America, with more restricted distributions. Because the timber rattlesnake has the largest distribution of any rattlesnake in the U.S., extending federal power to the *greatest number of states*, there can be no better or more useful candidate. Few other animal species in North America can compare with the grand *effect* offered by the timber rattlesnake to a growth hungry bureaucratic constituency. But the timber rattlesnake is only the beginning. . . . For once this big hurdle is over, and precedent for an American venomous snake is established, CITES will begin a more widespread campaign to recruit other North American crotalids as well, starting with *C. adamanteus* once North Carolina

takes the bold first move of moving it to state-listed "endangered" status. This will give CITES the needed precedent. A doubled, and redoubled USFWS is the plan, and a geometrically expanding ESA is the means.

In the words of Don Young, Chairman of the Congressional Resources Committee, "The USFWS is running amuck."

Having already "misplaced" $45 million of sportsmen's money, chased through three congressional hearings and faced with impending legislation about misuse of another $500 million, the USFWS is grabbing for every straw they can to justify an already precarious existence in the Endangered Species business (Miniter, *Outdoor Life*, March 2000).

As Miniter notes: "The U.S. Fish and Wildlife Service has changed from an agency mostly concerned with game management and sport fishing to an agency that's wielding the extraordinary power of the Endangered Species Act (ESA). As a result, the USFWS now has to care for snails, butterflies, cacti and every other flora and fauna in the U.S. . . . The ESA, which was passed in 1973, has brought the USFWS a barrage of lawsuits and pressure from environmental groups to do everything from protect the prairie dog as endangered, to saving spotted owls and finger-sized snail darters. This has made it a very political agency. . . . Through the ESA, the USFWS can stop development in Seattle because of dwindling salmon populations or introduce aggressive species (like wolves) into an ecosystem despite vehement local objection. . . . All this has to some extent shifted the agency's goals, but also its personnel. At one time the service was made up primarily of biologists who were also hunters [read that "field experience," my brackets]; now the USFWS is increasingly made up of nonhunters with very different objectives. . . . USFWS director Jamie Clark is a former USFWS Chief of Endangered Species and a Director of Ecological Services. . . . President Clinton appointed her in July 1997. She lives in a suburb of Washington."

Now the "trade" (such as it is) in timber rattlesnakes might be controlled much more easily and effectively at the source simply by putting a quota, or "bag limit" on take *within the state governments affected*. But this is an issue carefully avoided by the USFWS whose usefulness would thereby be challenged if the 29 affected states could themselves solve the problem internally without the help of Big Brother. The "pet trade issue" would dissolve into the smoke screen it is, and this would minimize the importance of CITES and friends (see further sections). But Big Brother does not like to be cut out of the picture; most of all He wants to sit on top of it. And 29 states is a fair hunk of the nation.

I have asserted that no science was conducted before electing to elevate *C. horridus* (and most other common snake brethren) to Government Ownership and Control. If you can put a species like *B. asper* on CITES (a species whose number exceeds that of the human beings in many of the countries in which it is found), you can do anything. Nothing more than propaganda, persistence and *incentive* is required for the monster CITES to snatch up a new animal or plant species. And here is our "Scientific Council," composed of USFWS and state paid employees trying to look very unbiased and scientific for all their unpublicized affiliations. And now, with mysteriously exact timing, USFWS has prepared a law proposal *coincidentally* going before CITES (in Kenya), the NCWRC (in Raleigh, North Carolina), and a committee in Columbia, South Carolina, all within the same 30-day period. Since USFWS controls *all three* agencies and in effect sets the timing of all three events, only a very naive individual could think this orchestration is mere happenstance.

At the public hearing: "We have the data!"

State and local governments like to the give the public fair warning about what is in store for them when a law is to be passed. You are invited to a brief public hearing and given a chance to express your opinion.

At our public hearing we encountered a "rent-a-mob" of activists composed primarily of the 11 "Scientific Council" members, their kith and kin, and their numerous students (a number of council members are teachers at the nearby campus). Encouraging their students to "get involved," apparently—and granting them leave from their classes in exchange for their carcasses. The majority of these were young girls for whom, I suspect, the sight of a live rattlesnake would have sent them fleeing in horror. Listening to their dreamy-eyed commentary as they one by one got up to espouse their teachers' views—like a band of displaced cheerleaders chanting "2, 4, 6, 8, who do we protect-o-rate? Rattlesnake, rattlesnake!"—I had the queer sensation that if it had been TV Muppets they had come to protect and not snakes, they would have provided the same response on cue. After all, who but a cruel person would not want to *protect* something. "Protect" is such a lovely word—and to want *not* to protect, so heartless and cold.

In just lower numbers than the young women were the employees of the State Science Museum, itself only three blocks away. This is where the "Scientific Council's" Chairman Alvin Braswell is installed. Between these and other state employees, the few non-state-connected persons could barely squeeze into the room. Farmers are not known to leave their tractors to drive hundreds of miles into the confusion of the Big City in order to contest a law they have not the least intention of obeying, and this goes double for hunters. I have since been informed of a survey done in the Wilmington, North Carolina, area by a property rights activists group who found that among "real people," at least, of 300 persons petitioned at random by knocking doors, all opposed the ruling without exception. Most of them said they had no intention of obeying the new law, and were shocked to hear that it even existed. The "kangaroo" nature of the public hearing was remarked in the *Washington Daily News*, although in politically more correct verbiage than I have ventured here.

But a public hearing is not quite a trial by any means. There is some room left for wisdom in a representative government. The NCWRC board of directors consists of about 20 individuals from all parts of the state. NCWRC has a seasoned and experienced director in Ernest Fullwood; and David Cobb, our Chief of Game Management strikes me as a very keen and discerning intelligence. They, not the "Scientific

Council" will be deciding on the matter on May 17, 2000.

What is most interesting about the public hearing process is this: while the public's opinion is invited, they do not get to ask questions. Or rather, they can ask them but not expect to have them answered. And one naturally wants one's questions answered first before making a decision. Since the pamphlets offered by the state did not cover any justifications for the ruling except a vague "decline" said to be occurring in the populations of the snakes, I naturally wanted to know what had caused the decline (or what they thought caused it) before deciding if so unusual a proposal could have any effect in rectifying it. I also wanted to know how they had determined the "decline."

My attempts to validate this matter were answered with a discursive "*we have the data*" and then I was summarily silenced. When at last it became apparent to me that there was no data, and when before the whole room I contested the existence of this data, and pressed them to show this data to me, I was given a speedy dismissal. "Please just state whether you are for or against the ruling," the auditor retorted. And I replied, "How am I know whether I am for or against your proposal if you cannot provide me any data?" Apparently it was considered a strange request to want to review actual information before making an *informed* decision. No one else in the room needed data, why did I? Indeed, and NCWRC did not need data either.

Subsequent inquiries into the scientific documentation backing up the proposal were never answered. David Cobb, Chief of Game Management did at least make the effort of calling me later. He agreed with me that such studies he knew of had not been published, and he was very dissatisfied to learn this himself. Evidently the material submitted to him (by the "Scientific Council") reflected only a couple of localities. No, he agreed, those two studies did not reflect the state as a whole. However, to dignify them with the word "studies" was surely overselling the product. A few photocopied pages bearing a small range map recalling the anecdotes of some snake collecting adventures of museum personnel, seemed to be all these studies consisted of. The field trips had not been fruitful (i.e., did not turn up many rattlesnakes); ergo, dismissing other possible (and more likely) factors, a decline in the region was construed. My efforts to obtain any further such "studies" from the "Scientific Council" have met with no success so far. Nor has V. Rouch of the North Carolina Herpetoculturists Association (NCHA) been able to obtain any examples.

Door to door salesmen (or con men) when out canvassing a neighborhood will frequently point out their successes next door in order to convince the "sales prospect" of the worth of the item they are selling. This strategy is being used in North Carolina, with advocates often justifying their views with nothing more than "Johnny did it up North." An examination of the writing of "Scientific Council" Chairman, Alvin Braswell in his *Reptiles of North Carolina* (1995; co-authored with William Palmer) reveals a decided bias against all aspects of commercial trade in herptiles. Summarizing Braswell, he writes that laws against collecting activities are being made in other states to the north, should they not also be made here in the south? This opinion was echoed by "Scientific Council" members at the hearing, where the oft-reported statistic "snakebite death is rarer than being struck by lightning" soon followed. The fact that North Carolina has the highest incidence of snakebite in the U.S. was not mentioned, nor were the annual 1100 bites. Apparently one has to die before becoming a meaningful statistic at NCWRC. A rotting hand or foot doesn't count, nor do the weeks or months you may spend in a hospital.

Viewing North Carolina as a microcosm of a Newspeak environmental trend stemming from a political, not scientific agenda, the federal source behind these manipulations sticks out like a sore thumb. We realize sadly that the federal bandwagon, roaring through the northern states (where snakebite is insignificant) picking up yet more state advocates along the way, depends not on science, but on emotionalism from a moral agenda. This bandwagon will go on rolling so long as lawmakers (who are not scientists) continue to be impressed or "bowled over" by the institutional connections of individuals with an environmental axe to grind. Such individuals need not bring with them any studies to validate their claims (they keep them in a smoky box offstage). The lawmaker would be not competent to review or analyze such studies in any case. The lawmakers merely accept the idea given to them on the basis of the scientific *connection*, not the science.

There would seem to be no question that Alvin Braswell has used the new proposal as an extension of his previous (and failed) 1998 attempt. Banning public use of 148 species of North Carolina native herptiles was a pretty broad step. But its political motive was perhaps even too obvious for state government at that time to seriously consider it. Moreover, the cost of implementing it would have been phenomenal. Every critter-catching kid below the age of 20 would have to be jailed in order to enforce it! (The sinister pet trade is, after all, composed largely of children.) Apparently, Braswell and his "Scientific Council" have now realized that it was biting off too big a hunk of public property to ban the use of *every reptile and amphibian* in the state, all at once. With the new rattlesnake law, Braswell's "Scientific Council" has adopted the strategy of working slowly. Their connections with USFWS kept their state bandwagon abreast of the federal (CITES) bandwagon so that they could both arrive together, a winning team at the same finish line. However, so great is their zeal (from their previous failure) that this out-of-touch fraternity did not reckon on one dinky little flaw in their program: *what did they plan to do with all the snakes they took away from the public*?

Euthanasia: The last gasp; you can't judge a death camp by its cover

Somewhere in that queasy half-world between hilarity and horror, lies irony. Writers look for irony in things because it adds punch to ideas, rendering situations memorable, in some cases unforgettable.

One does not have to look far to find irony in the present issue. Here is what the state of North Carolina plans to do with all the protected species they "rescue" from you and me:

They plan to kill them.

Whether you're a keeper of them in an expertly managed terrarium; whether you've rescued one off the highway with intent to release it somewhere; or whether you're a fearful homeowner confronted with a live rattlesnake in your backyard. It doesn't matter. Once entering your possession *it belongs to the state*. And the state has no provisions or facilities for maintaining live reptiles, or for releasing them.

Having heard of such horror stories in other states (where other "Scientific Councils" had left their mark), I was naturally concerned about what the state planned to do with all the snakes they confiscated now that they were getting into the reptile business (indeed, the biggest reptile business in the state). I was not supposed to ask questions, but I did succeed in getting this one answered. Reporters scrambled for their note pads, and lights for the TV news cameras blazed away on the auditor's face as he admitted the unbelievable truth. And the next day I read the answer in a dozen newspapers, confirming that what I had heard was real and I had not gone mad.

The procedure would be to *euthanize* (kill) all incoming reptiles from the onset. The law does not permit any dangerous animals (rattlesnakes) to be released and no program existed to maintain them alive. And once reasonable suspicion existed of an offender's guilt, the animal had to be retained as evidence in the courtroom. Thus a dead carcass answered as well as a live animal. In sum, once the state got involved, "protection" would cease and death would take over. The new law would not protect rattlesnakes *from the state*. It would put the North Carolina State Government into the business of killing them en masse, and make the NCWRC the biggest single killer of snakes in North Carolina history!

Protect equaled *Kill* in the NCWRC vocabulary. Which was fine if you hated rattlesnakes. But even if you did hate them, did you want to put the state government into the business of killing them—and worse, have to pay for it?

And so this was the end result of the new law to protect rattlesnakes: A glorious *rattlesnake round-up* paid for by the state of North Carolina! Take them from the public, take them from the farmer's field and the homeowner's backyard—take them, and then take their lives from them. First, restrict under penalty of law the public's God-given right of access to wild resources; second, demolish the hobbyist/herpetocultural experience in North Carolina; and third, exterminate North Carolina herptiles en masse.

Nor did this ruling extend only to venomous snakes. Any reptile confiscated from the public could meet the death camp standard. After all, captive collections may sometimes carry exotic diseases, communicable to other reptiles. Quarantining the seized animal for the appropriate time periods was something else again the state could not provide for. Moreover, there was the question of specimens that were acquired from out of state or from unknown localities within the state. Where could these animals be released even if they were proved after six months time not to have diseases? Thus those harmless species taken away from little boys and girls and their grown-up counterparts would also have to be treated to the same death-row service.

After all this horrifying news, there was one thing that disturbed even more at the public hearing. It was the strangely placid, still dreamy-eyed smiles on all the young college girls as they sat unmoved after learning that the Muppets they had come to protect were going to be killed by the state; and the merry faces of the wildlife agents, who would carry out any mindless order that was handed to them; and the pleased expressions of the scientific council members who sat like willing chess pieces behind them; and on the auditor's own face as he spoke tonelessly the word "euthanasia" and returned my gaze with a look that seemed half smirking. And I was reminded of an old movie I saw a long time ago about children who had come from another planet, and who were without any emotions that we could call human, and that murdered expressionlessly any human children among them who opposed their alien plan. That film was called "Village of the Damned."

A beneficial effect

Just as they do not bother themselves with doing science, the "Scientific Council" do not bother themselves with little details like State Death Camps. These crusaders are on a *moral* war, and whatever works is suitable ammunition for their cause. And what is this war about? It is about pet hobbyists. It is about halting the activities of bored teenagers who abandon their video games temporarily and go foraging through trash piles to find snakes. It is about 13-year-old Bobby and Billy and thousands of others, who, learning of the wisdom of their elders in high places, might sum up this situation with the greater wisdom of their youth: "Can't even catch a damn hognose snake now! Might as well sell drugs. I ain't gonna do less time."

For, while Braswell and his advocates in NCWRC acknowledge that probably no one will stop killing snakes because of this law ("it will at least raise public awareness about them," he says), they do note that it will have the "beneficial" effect of shutting down trade. And since this is predominantly a trade of young folk, it is the primarily the activities of young folk he will be shutting down.

Believing that few people would advocate the keeping of venomous snakes in captivity, Braswell begins here, where he expects the least resistance, as year by year his list of "declining" species grows and grows, and his 1998 proposal gets implemented the hard way: slowly, spiced with a few new common harmless snakes, frogs and salamanders along the way. The more species he can show to be in decline, the more jobs given to his office at North Carolina Museum of Sciences. For declining species need something called "monitoring." And which but his office will be given the job of monitoring the "declining species" when the grant and support money comes around?

In order to achieve his goal, however, he had one big stumbling block, which he learned to his dismay when his 1998 ban proposal failed: *North Carolina state law does not give NCWRC power to shut down commercial trade in what is classified as a "nongame" animal.* In order to halt the pet

hobbyist trade, Braswell could only influence state lawmakers to "protect" the species *from everybody*. Hence his proposal required endangerment to make it saleable to state government. Braswell was using the ESA in a *covert* way as a shortcut to a bigger highway—the goal of a banned pet trade. And if he had to put Farmer Brown and his family at risk from snakebite in order to achieve it—if, indeed, he had to become High Executioner of snakes himself in an ongoing state-funded slaughterhouse—then it was a small price to pay.

Have we become so jaded in the twenty-first century that we are willing to accept the *misuse* of public trusts like the ESA for *covert* purposes like these? Implementing programs that are themselves barbaric and cruel—more cruel, indeed, than any inadvertent affect of the pet hobby itself, because done with forethought. If it were murder, it would be considered of the *cold-blooded* type.

How much trade in native snakes is going on in North Carolina to warrant this ruling? How does the hobbyist trade affect reptiles and amphibians in North Carolina? What are the primary causes of "reptile decline" and is the hobbyist trade *significant* among these? And if it is significant (I will show that it is not) couldn't it be controlled just as well by putting a quota on take?

In this critique we will give repeated evidence that the conclusions of the "Scientific Council" did not arise from the use of scientific references, materials, methods, experiments, demographic studies, or any other formal avenue of scientific investigation, and that no proper investigation into the effects of human persecution and/or the pet hobbyist trade in herptiles has been conducted. Nor does any member of the "Scientific Council" possess any recognized expertise in the pet hobbyist trade, the area they have taken it upon themselves to condemn. Because they have no connection with it, they exhibit a pronounced naiveté in this area. Most importantly, the *true causes* of herptile decline have been ignored in favor of single-minded attack on an insignificant minority who do not have the means or interest to do the sort of damage imagined by the Council. Since we hold that to cure an ill one must begin by attacking the exact cause, not a fanciful one, the Scientific Council's recommendation will be ultimately damaging to the "patient" whose illness will go essentially untreated—while giving the rest of us a false sense of security that something positive is being done to treat the disease.

The perceived problem: Declining populations of North Carolina herptiles

The "Scientific Council's" 1998 proposal seems to have arisen in reaction to a perceived problem with commercial trade in all native herptiles and the declining populations that are being impacted by it. In the new 2000 proposal regarding venomous snakes, the problem was re-explained as "persecution"—meaning the law was supposed to prevent the *killing* (or catching) of the snakes and this would prevent (or retard) further decline. In fact, the new proposal reads like a rewriting of the old one from 1998, however limited to those few species the "Scientific Council" deemed safe to target. With the national campaign to include the timber rattlesnake under CITES occurring simultaneously, this was the propitious moment.

There were a few bugs in the machine. It would have been incongruous to assign the common timber rattlesnake the same status as the extremely rare (in North Carolina) eastern diamondback. This is what the musical chairs ride of "Special Concern," "Threatened" and "Endangered" is all about. This gives the state maximum discretionary power. A species doesn't really have to be *endangered*, it only has to provoke someone's "special concern." Once this whim is satisfied, the merry-go-round is engaged and "endangered" is in the offing. And so the diamondback, for whom "Special Concern" and "Threatened" did nothing, is now scooting over into the last and best chair, state-listed "Endangered" (O happy serpent!), in preparation for its federal ride into the most coveted seat of all—the U.S. Endangered Species Act.

But there were some flies in that ointment too. There was no precedent for state-listed Endangered protection of eastern diamondbacks in any U.S. state. But there were precedents for timber rattlesnakes in some of the northern states, where they were always less common than in North Carolina (in New York the incidence of snakebite per 100,000 people is 0.22). And so to incorporate the diamondback (which was nowhere protected) into CITES, pending absorbing it into the federal ESA, the logical first domino was to begin with North Carolina where it was already listed as "Special Concern." This gave CITES a precedent for *C. adamanteus*. Realize, however, that herpetologists have only found about a dozen eastern diamondbacks *ever* in North Carolina. Technically, the species qualifies—even if it no longer exists in the state except on paper.

There was little hope in succeeding at this game in South Carolina (it had already been attempted and Alvin Braswell had attended those meetings). And Georgia, with the "rattlesnake round-uppers" in Claxton and Whiggins, had their big sportsman's club and festival to oppose such notions. So North Carolina was the first and best choice for USFWS to begin its program of dominoes—beginning in the overdeveloped north, where rattlesnakes were scarce, and moving south where they were abundant and considered pests.

In none of these proceedings, you will note, does science have any place. These are not scientific issues, or even biological issues. They are political and bureaucratic issues. The snakes are only names to be moved about on paper to a specific end—very powerful names when incorporated into a federal ESA that has the power to control what you do with your land. This power has made many state governments afraid of the ESA, and understandably so.

Now in North Carolina the proposed solution to saving these species was to stop piecemeal human persecution of the snakes. Since nobody could stop habitat destruction or roadway mortality, with the house on fire, lawmakers decided to repair the barn. Farmer Brown's bloody hoe was to be outlawed and replaced with jail time if Farmer ever got caught; and Bobby snake catcher would have to look for other hobbies. This made the state herpetologists sleep better knowing they

had done their best, but it didn't do anything for the snakes but cover up the problem—the same gnawing problem that got the snakes where they are in the first place and gave the herpetologists the opportunity to get their noses out of their pickling jars and make flattering appearances in public offices. It is always a good boost for the ego when a lawmaker so values your opinion that he is willing to act on what you say. Only a man with strong character could resist.

Meanwhile, no rationale was developed as to why human persecution, which is nothing new to snakes since the dawn of time, was deemed to have become more significant within the last few years than in ages previous. This is because piecemeal human persecution *has not* become more significant in the last few years. But a *perceived* increase has. I do not use the word "perceived" lightly.

Because the North Carolina Nongame Office does not possess the legal power to halt the hobbyist trade per se, they can only begin by assigning these species various levels of protected status. Because "Nongame" is not "Game," they can't even very well set a "bag limit" at the present time without putting forward a law amendment more complicated than the present one to alter the status of nongame animals. So much easier to just "protect" a new species, which amounts to just writing in a new name on an old well-used form already dignified by well over 150 predecessors for whom protection has done nothing either.

While no responsible researcher would deny that the overwhelming problem facing all wildlife today is habitat destruction and degradation, the "Scientific Council" was yet "charged" to assess the potential susceptibility of individual populations of herptiles to stress from commercial collecting activities. This the Council has failed to do. Their 1998 report does not demonstrate any scientific evidence of the *effects* of any form of human persecution of snakes in North Carolina, least of all the hobbyist trade. Similarly, the new report (2000) cannot tell us how many rattlesnakes are killed (or have been killed) deliberately in any given year. Nor can they tell us how many rattlesnakes (or any other kind of snakes) were taken from the wild for commercial purposes in North Carolina last year, or in any other year. They do not know because NCWRC has long opposed (or been unable legally to establish) a quota system or bag limit on species taken, instead allowing a collector to take as many specimens as desired for a single $5 license fee. Ergo they can have no idea of impact or even the potential for impact of trade on all native reptile species.

Thus when North Carolina Nongame chief Randal Wilson states that "these species are being impacted by commercial collecting" and "the North Carolina pigmy rattlesnake has a reddish color, unlike the gray or brown coloring of pigmies elsewhere, making them especially attractive to collectors," he is telling us about a *potential* for collection, but cannot tell us in numbers what that potential means. Does the potential mean 10 or 200 examples per year? Likely more are killed on roads on a single spring night. Is the total wild population of pigmy rattlers in the tens of thousands, or in the hundreds of thousands, or millions? Nobody knows. Thus the wording "impact" is highly deceptive—and in such a context, meaningless. We should rather ask, is there a *significant* impact? And if it is insignificant, that is, below a certain level of detectability, does it qualify as impact at all?

The eastern diamondback rattlesnake (*Crotalus adamanteus*) provides an example of how facts can be twisted by a biased mind-set in order to satisfy a particular belief. These large rattlesnakes were always rare in North Carolina, and perhaps not much more rare today than they were 50 years ago. A bounty on these snakes (by Tote-em-in Zoo, eastern North Carolina's largest zoo) brought in no more than about 10 examples in 47 years (pers. com., G. Tregembo, proprietor). The State Museum collection of preserved specimens is composed largely of these very specimens.

Why are there so few diamondbacks in North Carolina? It is too cold. North Carolina sits at the very northern extremity of the diamondback's range. A mere fringe population, even to call North Carolina part of their distribution range has only a sort of vague historical meaning. For the record, I have been even less successful at finding these snakes than George Tregembo's zoo. In 30 years of looking for them, I have never seen a live one in the field (I once found a dead one on the road)! In sum, I had no better chance of finding a diamondback rattlesnake in 1970 than I do today.

Are we to imagine then that this locally rare species has been affected by commercial trade? Pretty unrewarding work: you can't hunt out what you can't find. Can we state then that commercial trade at the Tote-em-in Zoo, with their 10 specimens in 47 years, has had an impact on diamondback populations in North Carolina? Only if we employ pathological science. The same can be said for the eastern coral snake (*Micrurus fulvius*). Not more than about a dozen examples have ever been found in North Carolina. So when a protection advocate like Dave Davenport, curator of reptiles at the North Carolina State Science Museum, declares that "I challenge anybody to find coral snakes or eastern diamondbacks anywhere in the state," he is in fact saying nothing at all. But he *is* saying a great deal about the private agenda of the North Carolina State Science Museum, and the self-dubbed "Scientific Council" that sits under its banner.

And here we see further signs of pathological science creeping its inexorable way. For two species that are so rare that 47 years is not enough to find a handful of them, cannot suddenly have become "endangered" by human collection and persecution. If they are endangered, it is other pressures that are responsible—pressures of a more widespread type than the sort of protection now being offered by the state can ameliorate. The urgency now to elevate diamondbacks to state-listed "Endangered" from their not-uncomfortable file in "Special Concern" is therefore political—not biological. The musical chairs ride doesn't change a thing for the snakes. The only change that takes place is in the lawmakers' offices.

Are timber rattlesnakes endangered in North Carolina?

The eastern diamondback never really had a future (or even much of a past) in North Carolina. But the future of the adapt-

able timber rattlesnake is not so grim. Although the timber rattler has been effectively eradicated in much of the Piedmont due to agriculture, development and the enormous number of asphalt roads linking all these biological catastrophes together, it would be hard to say if this splendid snake has suffered much in many other portions of the state.

Within the National Parks, forests, and gamelands throughout the western part of the state, *C. horridus* should be no less plentiful now than it was a century ago. But how plentiful is plentiful?

Because no survey has been done in North Carolina (the "Scientific Council" does not bother us with such details), we can attempt only the most ballpark estimate here. By looking for comparable figures in surveys made in other states we can perhaps arrive at an idea of what a "healthy" population should, or could, be.

Some clues can be found in Martin (1992). In this study performed in nearby Shenandoah, Virginia, *C. horridus* was found to be quite numerous. There were 115 hibernacula, with spacing of 1.68 km for 99 dens, with total populations in the 10 largest dens estimated to comprise 120–200 snakes. Populations of most dens ranged from 30 to 60 specimens. But this estimate represents only the numbers seen in dens, and not dispersed. It also represents only those dens that were discovered. Only the wildest intuitive estimate can fill in the blanks.

Using the parsimonious estimate of 50 individuals/sq mi of "good" habitat, I believe that there can be no fewer than 40,000 timber rattlesnakes in the Great Smoky Mountains National Park alone (a very conservative estimate based on 800 sq mi of park and five reproductively active females capable of producing > 50–80 offspring each year). While this is a very rough number, in fact this is most certainly an underestimation. To persons unfamiliar with snake populations, 50 rattlesnakes/sq mi can seem like a lot of rattlesnakes. It isn't. A square mile of unspoiled habitat is *big*, and in 640 acres (1 sq mi) the chance of spotting any one of so few as 50 examples hiding in dense cover is extremely low. With a fecundity factor of 10 offspring to one female, 50 examples/sq mi is then highly parsimonious. Judging from numbers in Martin (1992), in some regions the populations may exceed 200 snakes/sq mi (and these are only what he was able to count). If half of these 200 are reproductively active females, these will produce more than 1000 offspring annually. (Timber rattlesnakes can reach breeding age much earlier in the North Carolina mountains than in the northern states, at about age 4–5 years. As such they enjoy a longer reproductive life, females giving birth as often as 10 times in a 25-year life span.)

The Great Smoky Mountains National Park is only one small part of the sparsely inhabited Appalachian chain, which covers well over 10,000 sq mi in North Carolina. Within an area this large even a hundred herpetologists working day and night for several decades could not begin to count all the snakes there, and more snakes would be born as their work progressed. We have the Pisgah National Forest, the Cherokee National Forest, the Nantahala National Forest, and others. How logging in these areas may have affected habitat (and thus populations), we have no idea (and this deserves our full attention); and yet it seems safe to say that there must be at least 100,000 adult *C. horridus* extant in our North Carolina mountains. This far outnumbers populations of black bear, for example—a managed game animal for which you can apply for a permit to hunt. It also exceeds or rivals the human population in these mountains. So when I start hearing broadcasts from a "Scientific Council" recommending that the timber rattlesnake be classified as "Special Concern" in North Carolina with a possible future upgrading to "Endangered," I begin to wonder which planet they are talking about.

Depending on the numbers of dens you find, or individual examples you chance upon, you could construe a "decline" simply from poor encounter rate. Reinert (1992) blames the "the observational limitations imposed by chance encounter" as having colored our views of timber rattlesnake habitat. We must acknowledge that for every one snake that is seen, it's a safe bet that there are many, perhaps hundreds of others, that are not seen. Even finding a den is not an easy thing. And to make counting timber rattlesnakes more complicated, the greater portion of populations (about 75%) do not den en masse, but in small, dispersed refugia. Only about 25% of the timber rattlesnake's range is in mountanous habitat. Thus, shrinking den populations in some localities may be important locally but be of little importance overall. Discounting temporality, rate of encounter depends on three factors: (1) populations of snakes exceeding a certain number as to make some (usually a small percentage) visible; (2) visibility of the particular example within the habitat (3) chance. Counting snakes is so hazy a business, and the difficulty of finding snakes is so great, that herpetologists cannot be sure there even *is* a population of a given species, and must base their remarks on the reports of local informants *gathered over many years' time*. All the present distribution records for snakes in North Carolina were gathered in just this way: *through years of patience*. The contributions of people like William Palmer, who devoted his life to gathering these sorts of records from individuals more actively involved in field collection (such as George Tregembo and family of Tote-em-in Zoo, who have given us more field data than anybody) are what tell us what species are in North Carolina and where they are found. This has nothing to do with field trip "surveys" whose results are so opportunistic and conditional as to be meaningless in the final analysis.

Thus, when a "Scientific Council" springs up one day and starts shouting "decline! decline!" as a scientist I am a little offended. What has taken a man like Bill Palmer a lifetime of patient effort to determine, his junior, Alvin Braswell, has accomplished in comparative minutes. This Chicken-Little science is the method of the "Scientific Council." Assuming first, on almost no evidence, that there is a decline, then ignoring all the myriad other possible causes for that "decline" (e.g., periods of excessive cold weather, developmental pressure, excessive logging [removing hibernacula] and the natural cycles of decline which do periodically occur), only a mind-set fixated on a particular *pet* peeve could find a way to blame it on snake-catchers.

There is no doubt much less habitat than there once was for timber rattlesnakes *and all snakes* in North Carolina as of this year 2000. Emphatically, then, *all snakes are in decline*. But has the timber rattlesnake suffered any more than its fellows?

The timber rattlesnake is one of our larger native snakes. Because it is not *as large* as the eastern diamondback, it has survived in northern climes that would be inimical to the diamondback; smaller, it can squeeze into smaller refugia to escape the cold winters. The larger eastern diamondback needs a larger hibernaculum. Lacking a gopher tortoise burrow or other animal burrow, it can make use of a "stump-hole" involving tree roots, but this requires a tree to have reached a large size and a subterranean access into its root channels. When the big trees are felled and their stumps uprooted, and the ground plowed for pine farming, the diamondback has no place to winter and is exterminated. Hence the presence of the gopher tortoise has made the diamondback more common in south Georgia and Florida, even though pine farming is going on there, than in nearby South Carolina which has both pine farming and a colder winter (the gopher tortoise is not widely found in South Carolina).

The lowland timber rattlesnake, or "canebrake" is larger than the true timber rattlesnake because it inhabits a more southerly (warmer) clime. Having a longer season to feed, it can get bigger. But the trade-off is that it has fewer places to hibernate, for there are few if any rocky inclines in the lowlands of the southeast. Hence the canebrake rattlesnake extends only as far north as southern Virginia, whereas the smaller timber rattlesnake reaches nearly to Canada.

The denning activities of the mountain populations of *C. horridus* give us a means to count *some* of them, and from this we can make an always precarious estimate of their numbers. But what percentage we are actually seeing is completely unknown. One must always be willing to assume that there are a good deal more snakes than what is seen, and that even if none are seen, the potential is still very good that they are there so long as habitat exists for them.

In the case of the canebrake rattlesnake, we see this situation amplified tenfold. In the lowlands of eastern North Carolina, where there is little elevation variation, a square mile means a "smaller" habitat but it also means a much longer active season for the snakes, almost nine months out of the year. Here the populations are almost entirely dispersed, and mass denning of the sort seen in the mountains is unknown. This dispersal factor makes it absolutely impossible to count or collect these snakes in the way that is possible in the mountains (i.e., one cannot look for dens). One finds them only by the merest accident—and such accidents do not happen very often.

However, the lowland *C. horridus* still shows itself to be numerous due to frequent road kills and sporadic human encounters—they still turn up in people's backyards in rural areas. In coastal southeastern North Carolina the greatest populations are in Brunswick County (especially near the Sunny Point military terminal, which preserves some of the last standing maritime forests in the region), Pender, and Onslow counties. They are still encountered in Columbus, Robeson, Bladen, Duplin, and Sampson counties. They occur in most rural areas in the eastern part of the state, and range fairly far north, even into southeastern Virginia. In New Hanover county (where I have lived 43 years) they have been mostly exterminated by rampant development, although a population still exists in the northernmost extremity of the county near the northeastern Cape Fear River. As recently as a few years ago, I could find them within five miles of downtown Wilmington, North Carolina, a city with a population of over 150,000 people.

Because of even greater area, and using the parsimonious "50 examples/sq mi" in appropriate habitat (requiring only five reproductively active females, each of which will produce more than 10 young, totaling > 50 young), the whole of eastern North Carolina must certainly surpass the ballpark 40,000 figure I have given for the Great Smoky Mountains National Park, since there is, at present, far more than 800 sq mi of appropriate habitat here. An earlier breeding age in eastern North Carolina, with females reproducing as early as age three years (pers. obs; compare to New York, where reproductive age is not reached before seven to nine years; Greene, 1997), with up to 20 offspring, makes these snakes more prolific than those in the western part of the state. Hence the widely remarked "late reproductive age" of timber rattlesnakes, as is used in USFWS propaganda to justify the low recovery rate in the wild, is only pertinent in the northern ranges of these snakes. In the U.S. overall, the canebrake form alone, which occupies no fewer than 11 southern states, must number about a million individuals, including young of the year. This does not seem like an endangered animal to me.

Reinert (1992) considers the timber rattlesnake a widespread and fairly common species in its very large range throughout the U.S. But the publicity people at USFWS and their love child CITES, mouthing the words of pathological science, want us to believe that a roaring pet and skin trade is depleting them en masse. Yet they can never tell us the numbers of the animals taken. With a budget of $6,000,000 to chase Tom Crutchfield all over the world, you would think that USFWS would have an exact figure at their fingertips. Far from it—their publicity people do not even know how many timber rattlesnakes were exported from the U.S. last year and I have had to invoke the Freedom of Information Act (FOIA) in order to get the Office of Management (OMA) to find out. (I am still waiting for their figure). In the meantime, the best they can do is warn us about a "billion dollar a year pet industry," which, after all, just rivals their own budget. By all estimates this billion dollar a year industry must be in pet supplies and not snakes, as I shall show.

And so we have a snake which bandwagoneers are preaching to be at the edge of extinction, and which people keep right on finding, running over with their cars, and getting bit by. And timber rattlesnakes are not in such decline that they have ceased biting people. Far from it. In a recent incident involving *C. horridus*, a Brunswick County man was bitten, not in the woods or fields, but inside a mobile home that he was repairing! He inserted his hand into a heat duct, and was promptly envenomed. The trailer had sat empty for a few

months and the snake had apparently entered the heat ducts from outside. A very severe case, it ended in several hundred thousand dollars in medical expenses and eventual amputation of the major part of the limb (pers. com., Dr. Marburg and associates, who treated the bite). In another severe bite a woman was bitten and had the profound bad luck to enjoy two flat tires in route to the hospital. She died, not from the bite but from a reaction to the antivenom—her heirs sued the doctors and hospital for wrongful death and were awarded a large settlement. Most bites however, do not make the newspapers. After all, timber rattlesnake bite has been going on in this part of the south for several hundred years by now. We are "the most snakebitten state in the nation." Down here we don't make a big deal about these things.

At this stage, what biologists ought to be asking (and what state government ought to be asking) is not how many rattlesnakes there were before (this can never be known), but how many rattlesnakes are *enough*. To increase numbers of rattlesnakes will in direct proportion increase the number of snakebites—this is not specious. If we want rattlesnakes to be as abundant as in former times we must be willing to offer them a place to live. They cannot coexist with human beings—human beings won't tolerate it, and no law can change that. If we are not willing to give these snakes a place to live, then the most powerful ESA cannot help them.

Elevating the timber rattlesnake to the status of "Special Concern" in North Carolina is bizarre for a number of reasons. One usually begins state-listing animals because they are in danger of dying out. There certainly seems to be no danger of timber rattlesnakes becoming extinct or even "endangered" in North Carolina within the next few decades. Short of destroying all their habitat, the most deliberate effort at exterminating them could not succeed. And man has been trying to do just that for over 200 years! Declining, yes—certainly these rattlesnakes and all species of snakes are in numbers far reduced from years previous. But to state that it is the *timber rattler* in particular that is declining is to ignore a less pleasant certainty: the habitat of all species of snakes is shrinking at a rate unprecedented in American history. Even numbers of cottonmouths and water snakes are at an all time low (the high visibility of these snakes, and their habit of gathering along the edges of streams, makes this easier to determine than for rattlesnakes). The reasons for this "decline" owe almost nothing to individual human persecution and everything to the changing character of our world: developmental expansion, pine farming and agriculture, draining of wetlands, and the poisoning of rivers and streams with fecal wastes (killing fish and amphibians). The laws being proposed will not correct these problems. Indeed, they appear designed specifically to overlook them (see further sections).

So, with all this in mind, exactly *why* are timber rattlesnakes now being considered for a kind of protection that cannot possibly help them? I have reviewed the political agenda motivating our "Scientific Council" and its explicit timing with the growing pains of CITES and USFWS. The "Scientific Council" seems to have been merely waiting in the wings as special signatories to federal plans. But there is one other factor I have not mentioned and it might better be classified as a sentimental motive than as a self-aggrandizing one.

As the always smaller populations of timber rattlesnake in the northern states shrunk even further due to anthropogenic havoc, and laws protecting them were easily passed in those regions where snakebite was almost unheard of, North Carolina found itself in an unusual position: it was the nearest southern point for a northern snake collector to come and *legally* catch snakes. The *Yankee* snake collectors, their wild-caught supply cut off in their own states, were coming down here to steal our *southern* wildlife! The anti-commercial traders on the "Scientific Council" resented this, and an NCWRC anxious to give their North Carolina Nongame department something more to do than answer the telephone, were themselves motivated to make what had historically always been legal, illegal. The emphasis became to put restrictions on the commercially "desirable" snakes. What wasn't desirable (e.g., cottonmouths) didn't concern them.

It may sound ridiculous that an ESA ruling was invoked merely to stop snake-carpetbaggers, but it is perfectly true. And yet most North Carolinians would agree that the Yankees are welcome to all the rattlers they can take. One newspaper editorial (the Pulitzer prize winning *Washington Daily News*) covering this controversy suggested that we should not only let the Yankees have our snakes, but put them on the state payroll as well!

But if the rebel rancor is so stirred by thoughts of sneaking carpetbaggers stealing our fangs and venom, why does it not occur to these patriots in the "Scientific Council" and NCWRC to simply *charge a fee* to these out-of-state collectors, with a "bag limit" on amount of take. This is exactly how other "game" is managed—why is that not being done with snakes? Answer: (1) it would require legal wrangling more difficult and unusual than merely state-listing the animals. "Protecting" a species is a standardized process; you merely add a new name to a pre-existing form proposal (do this year after year and soon you will have got them all); and (2) it would control the situation without imposing a complete ban.

The "Scientific Council" does not want to control the situation. They want to keep the problem going—*as an issue*—in order to satisfy their own objective of *imposing a complete ban*. As Preservationists, not Conservationists, they will settle for nothing less than to shut down all hobbyist interaction. They made this abundantly clear with the 1998 proposal. And so fanatically single-minded this goal that they are willing to risk the life and limb of a fair number of *human* North Carolinians in order to see it achieved!

And so the pigmy rattlesnake—which God knows is coveted by every northern man and woman alike—is now also to become worthy of our "Special Concern." Not to protect the snakes from North Carolinians, who could care less about them; but to stop the carpetbagging Yankees from stealing them. It is the old case of using the ESA for a covert objective. A biological issue subverted to a political agenda.

How to get into the pigmy rattlesnake business

It is a fact that out of state collectors do (or did) travel to northeastern North Carolina to look for the red-colored form of *Sistrurus miliarius*. They have been doing it since the 1960s. But they must be very skilled collectors indeed to be able to pick out from among the incredibly dense forest debris these tiny snakes of less than 20 inches length, that can coil up in a space smaller than a single large oak leaf. That they manage to do it without the aid of tractors and plows to rip up the wire grass growth and underground places where the snakes live makes their skill all the more remarkable. They must be *very* skilled collectors, with better eyes than the hawks and owls that feed on them, to do damage to populations encompassing better than 10,000 sq mi.

And how many pigmy rattlers can we ballpark guess to inhabit a square mile? To suggest less than 50 (10 reproductively active females equaling < 50 offspring) would make the rate of encounter so low as make finding so small a snake completely impossible. Lest we be accused of "rigging the game," however, we will use an average figure of 10 individuals/sq mi (granting that in some favorable habitat there may be 100 or even 1000). This should satisfy all doubters. Thus in 10,000 sq mi of habitat there should not be fewer than 100,000 pigmy rattlesnakes in the sparsely developed rural counties of Martin, Beaufort, Washington, Tyrrell, Dare and Hyde from which the "desirable" red phase snake emanates. That's a lot of rattlesnakes and genetic diversity. The more so considering that it is completely renewable from year to year, so long as habitat remains. But this is just the "red phase." Given a fairly large range for these snakes in North Carolina (well over 30,000 sq mi) we should not be surprised if pigmy rattlesnakes exceed 200,000 or even a million individuals in North Carolina.

How many pigmies are sold each year in the U.S.? Glades Herp, the world's largest venomous snake dealer, reported to me that they had sold only 20 last year. All these, however, they had reproduced in captivity themselves. They considered this a "good market," and were willing to buy some from me if I could get them, at a wholesale price of $100 each (provided my specimens were legally obtained). They would then retail these snakes at $300, noting however that it would take several months to sell them. They could not buy more than about 10 at a time.

So there is a market, however minute. And the price is relatively high for a North Carolina snake (at least if you're the world's largest dealer and have the clientele to sell them). The problem for Glade's Herp was not demand (sales), but supply, that is, acquiring them. This indicates that either (1) pigmies are so hard to find people are unable to supply them; (2) wild collection is unprofitable (because difficult and time-consuming) and not done very much; (3) the present law (requiring a special permit) is working and few people are collecting them because of that, i.e., the pigmies are not being impacted; or (4) that sales generated by Glades Herp are sales generated by Glades Herp (they have an established clientele to which they can move the product) and other collectors cannot find an equivalent market.

Lest one jump into the business of breeding (or hunting) pigmy rattlesnakes thinking it offers lucrative opportunities, the reader should first beware of a few things.

Market saturation is always a danger in any collector's trade, from coins to postage stamps, and the venomous snake market is the most limited of all herp markets. Even the larger harmless snake markets are at the mercy of demand. The greater the supply, the lower the price; for the urgency to sell live perishables is considerable. The albino Burmese python is a good example. During the first year these snakes became available, they were valued at over $3000. After the third year, when more people began breeding them, this price fell to $1500. After the fourth year they could be bought for $500. At the present time the price is in the $20–40 range. Many people who got into this business with intent to make money soon found out the truth about the "lucrative snake breeding business." They lost their shirts.

Compared to the harmless snake market, the venomous snake market is exceedingly small. There are no more than 1000 collectors of venomous snakes in the entire continental U.S. (I have most of their names in my Rolodex, the product of years of accumulation). Of these, only a small number are strictly "rattlesnake" enthusiasts. The business is characterized, as are most hobbies, by the emotional phases of the participants. Fads rule the day. This year one species (or color phase) is a hot item, the next it is another. Collectors are often young people, who will get out of the hobby after a few years (or months) once the newness wears off. Of the true "serious" private collectors, who will continue with the hobby for more than five years, the number is much smaller, perhaps 150 persons. Most all collectors will get in and out of the hobby several times during the course of their lives, and it is here that the dealer makes his best buys, with the no longer enthusiastic hobbyist selling out for whatever trivial money he can get.

Once the market for a particular species is saturated, the price must drop drastically before any further trade can be conducted. A newly available "legal" red pigmy rattlesnake worth $200 in the first year may be worth half that amount in the second year. If the snakes remain available, by the third year the price will divide yet again. Captive breeding will drive the price down even further. This is another way the reptile dealer makes his money: by buying surplus animals cheap from breeders who don't have the connections to find buyers themselves. In fact, the whole key to being able to sell any snake is in knowing who wants what at the *right time*. The most expensive snake in the world is worthless if you don't know whom to sell it to. Because the animal is perishable, the dealer must be able to double his money or better to cover possible losses. Hence, to sell a retail $200 snake to Glades Herp, the seller must be willing to accept about half or less the retail amount (about $100), but then only provided it is feeding and in top shape. But if there is already a big supply, the seller will have to content himself with whatever he can get. In this perilously insecure market, a snake on Monday may be worth a fraction of what you paid on Friday. Captive

born specimens, because they are already acclimated, always enjoy precedence in any negotiations.

Nor can you expect to always receive money for your transactions. Perhaps half of all "sales" of snakes to the big dealers are not for cash, but for "trade value" on another reptile. In fact, a great deal of the snake hobby is simple bartering, and no money is exchanged. If $200 is the average price between collectors (always lower than the dealer price), and there are 200 people who will buy them over the course of a year, what is the total world dollars value in all saleable pigmy rattlesnakes in the first year? $40,000. Less than Randal Wilson's salary. It seem ironic that he gets paid more to keep you from having pigmies than the total value of the pigmies you yourself could sell if he were to suddenly give that many snakes to you; but remember the worth of his office (as state-paid snake price regulator) is not gauged according to the worth of a single species, but by the *total* number of species he can "protect." And by "protecting" them, he enhances their dollar value. Just as his job security is predicated on numbers of state-listed animals (and for him, the more the better), the smart breeder of wildlife will always gravitate toward protected or limited supply species. If you are in the business of breeding pigmy rattlesnakes out of state, you will not hate but love the North Carolina Nongame Office. Randal Wilson will be your best friend. Glades Herp could not get the money they are currently getting for red pigmies without Randal (or someone like Randal) willing to shout "decline, decline!" at the drop of a bandwagoneer's hat.

Thus the only reason the red pigmy has reached its present dollar value is that the supply is low, i.e., they are *illegal to obtain from the wild without special permit*. If pigmies were legal to collect, they would flood the small existent market and revert to the price they held for some 30 years prior to the existence of the law: less than $25. Hence the regulation against collecting them only succeeded in doing one thing: *increasing their desirability and driving the price higher.* Dealers refer to this as "artificial rarity." A snake becomes rare because it is "protected," and reaches an abnormally high price in spite of being a common snake in the wild (e.g., Australian herpetofauna). Truly rare herpetofauna (e.g., bushmasters) are valuable even though no laws exist to protect them. Predictably, the total dollar value on the world market of the 200 saleable pigmy rattlesnakes after a period of two years legalized collection, would likely drop down to a paltry $5000, as opposed to the present $40,000 on the same number of snakes. Poor Randal Wilson if this should happen! Collectors would lose interest in the pigmies and his office would have one less reason to exist! So the smart snake breeder avoids breeding "artificially rare" species and sticks to truly rare species, since he is apt to end up losing money if the laws should suddenly change, or continued availability despite the laws (and encouraged by the laws) means that more people are collecting them illegally and/or captive breeding them.

If Randal Wilson wanted to end the "desirability" of the red phase pigmy rattlesnake, he need do nothing more than let 200 be legally obtainable by the public on an annual basis for about two years' time. After this the "craze" would be over, the luster gone, and he needn't fear so many Yankee invaders he can't control anyway. But then what would Randal Wilson have to do all day if he couldn't arrest people? Randal Wilson needs pigmies and other species whose desirability has been artificially inspired in order to justify his office. A vicious cycle.

But here's the rub—for years now the pigmy cannot be collected in North Carolina without a state permit, and the state doesn't issue them except to Alvin Braswell and special friends (see further sections). So if Randal Wilson thinks there is still a problem with illegal collection, why does he think yet *another law on top of the present one* will control the problem? How many "pigmy poachers" did his office catch in the act last year? Answer: three? two? none? So on what does he base his evidence that the species is still being "impacted" by overcollection? Answer: On the opinion of Alvin Braswell and the North Carolina Museum of Sciences. Indeed, Braswell and company ought to know. *They were the major takers of pigmy rattlesnakes in the state of North Carolina last year, and for more than 10 years before* (see further sections for documentation). Collectomania is not confined to hobbyists. It's always nice to be the only kid on the block. The higher the price tag, the nicer it feels, no matter if you are a breeder, or a museum worker who has carte blanche to catch all he can carry.

Will making diamondback rattlesnakes "endangered" in North Carolina increase populations of the remaining snakes? Hardly. They have been under "Special Concern" for over 10 years and Dave Davenport's "challenge for us to find them" was made only yesterday. Has "Special Concern" or "Threatened" status helped these or coral snakes so far? Obviously not, for now our State Guardians of Snakes feel the need to *elevate* these species to a yet "more secure" status. When a cure doesn't work, eventually you have to admit that it is better to start looking for another medicine—or doctor. This common sense logic works everywhere but in state government, however. Our state-paid quack physicians just keep piling on more and more bandages, allowing the real ulcer to keep growing underneath. And the real ulcer has nothing to do with pet collectors, as I will show.

The northern pine snake (*Pituophis m. melanoleucus*) is another "Special Concern" species for which "protection" has simply done nothing whatever. Another fringe population in North Carolina, whatever their number was before (nobody knew), it can only be less now, since development has increased tenfold in the areas where it lives. The "Scientific Council" warns: "The northern pine snake may receive federal listing. . . . It is a highly desirable pet, and individuals sell for as much as $100. . . ." Most CHS members who work with pine snakes will find these remarks humorous, at best, and I needn't go on. Glades Herp only sold 50 northern pine snakes all last year and 42 of them were captive born. None of them came from North Carolina. Probably a thousand times more pine snakes are killed on roads throughout the U.S. on a single summer's night, any year you pick (see further sections).

Intending, as in all their reports, to instill panic of the roar-

ing pet trade, the "Scientific Council" obviously have not the least idea what any snake is really worth, how many hobbyists and dealers will buy them, and how many examples they could sell, given an endless supply.

We must really use our imagination on this next proposal listing: It is the southern hognose snake (*Heterodon simus*). In "Scientific Council"-speak, this secretive little toad-eater has somehow been pushed to the brink of extinction. In popular writings we learn that everything from loss of sandhill habitat to encroaching fire ants is slowly doing them in. The idea is so widely accepted that state listing is now moving from state to state to "save" them (from God knows which menace herpetology can fabricate) with other state-paid Chicken Littles leading the way. Of course there is no proof of a decline. There's not even anyway to measure it. The snake is so secretive that only an incredulous imbecile or a shameless con man could even believe it was possible to determine such a thing. But that doesn't matter, it gives State Herpetologists excuses to do "studies" of snakes that are so cryptic that nobody can find them, their "evidence" surmised from roadway mortalities that are astounding considering that their own broadcasts tell us their populations are so few (see further sections). The "snakes in decline" hysteria spreads like the pathology it is, and the ravenous pet collectors ravaging our hills and streams get the blame for collecting a snake that would seem to have almost no resale value whatever (Glades Herp sold only two last year), and be impossible to hunt successfully even so. No more the delight of local children, who opportunistically catch these snakes (usually in their backyards), play with them and then release them again (learning a friendliness toward snakes from their experience), now catching a hognose is to become a punishable offence. The kids (and their mothers and fathers) are henceforward to be branded as criminals for the possession of a snake that no commercial trader in his right mind would ever try to sell.

No matter, it has satisfied the ego of some State Herpetologist somewhere who has shown how he can flex his muscular influence by putting *yet another* name on an already monstrously big list, another notch on his belt. "It will raise public awareness" Alvin Braswell says. "Really?" I reply. "There are over 175 mammals, birds, reptiles, amphibians, and fishes on the state protection list. Do *you* know what their names are? Could even a game warden properly tell you unless he had the list actually before him?" So much for elevated awareness. You can't be made aware of something you can't remember, on a list so long you can't be troubled to read it; and, moreover, a list that changes names from year to year with the randomness of a floating crap game. Certainly you will never have that list in your hands at the critical time when a snake is lying in front of you on the roadbed; nor will Farmer Brown bother to consult such a tome when he goes to the barn to get his hoe.

Here is the mimic glass lizard (*Ophisaurus mimicus*), given Special Concern some years ago by the Braswell team. These animals were always rare as hen's teeth in North Carolina—but so similar to the other common species, *Ophisaurus ventralis*, that almost nobody can tell them apart. How is the public's awareness raised about an animal they cannot identify?

We must ask ourselves: what are these laws accomplishing? If they are accomplishing nothing, do we need them? And do we need more such laws that achieve nothing?

The "Scientific Council's" proposal would have us imagine that a problem with "declining rattlesnake populations" can be linked to commercial trade. I do not buy this idea—not because commercial trade does not make use of these animals, but because it is irrational to think that this sort of "human predation" is significant enough to widely affect them. There just aren't enough people in the world who want to keep an animal that can easily kill them. Probably more rattlesnakes are killed by hawks and owls in a single day in North Carolina than the combined total human take of rattlesnakes in an entire year (I demonstrate the reality of this statement in a later section). The proliferation of hawks across the state in recent years directly corresponds with the so-called "reduced snake populations" the "Scientific Council" complains of. Compared to raptorial birds, the human taker is an incompetent bumbler whom, if his life depended on catching enough snakes to feed his own belly, would very soon die out as a species. The reason is simple: man's ability to find snakes is a hit or miss process.

The Limits of Technology: Snake Collecting

How many individual rattlesnakes are in North Carolina? How many were there in the past versus the modern day? More simply, how many rattlesnakes do we *want* to have in North Carolina—what is a biologically acceptable number?

These are questions the "Scientific Council" have not bothered to ask. Yet one ought to have a clue, at least, to present population numbers of rattlesnakes before determining if, in fact, rattlesnakes are in "decline." We can ride around in cars and look at damaged wildernesses, and get a fair idea of what represents good habitat throughout the state, but as for actual *numbers* of snakes—this is difficult even in small localities. In a state of over 52,700 sq mi, it is physically impossible. Thus the "Scientific Council's" assertion that rattlesnakes are declining is based on nothing more than opinion.

Finding a rattlesnake (or any snake) in forested area is not easy. It can best be accomplished in springtime when the snakes sun themselves on roads (prior to being run over by cars!), or can be exhumed from under pieces of sun-warmed roadside debris. Snake counting (or collecting) can scarcely by done at all in summer (except for water snakes), when snakes become so dispersed that finding them at all is a monumental task. No such study conducted in summer could even begin to say "how many," and even in the spring the window of observation is so narrow that one must assume everything on the basis of a few specimens encountered during a few weeks time. One never encounters more than a tiny fraction of the overall populations, and can draw few good conclusions about numbers from whatever amount one finds. That is, unless you use pathological science. This leads us to an important point: How does one go about collecting rattlesnakes (or any other snakes) in great numbers for sale? What tech-

nologies exist to do what the researcher himself cannot accomplish? None at all. Snake hunting is one of the most inefficient of all human endeavors.

In Georgia, Florida, and some other parts of the deep south, the rattlesnake enjoys a commensal relationship with the gopher tortoise, which lives in an underground burrow. Unscrupulous catchers of rattlesnakes (for "rattler round-ups") will introduce gasoline fumes via a hose into the burrow, in order to flush out the rattlesnakes. This does not mean every hole contains a rattlesnake—and it is dirty hard work attempting to find and extract rattlesnakes even in this cruel way. It is also very time consuming (about an hour for each burrow, even if you know where all the burrows are). In tracts of land that may exceed 200,000 ha, the chances of one finding even a small fraction of these burrows is remote at best. Thus rattlesnake hunting, even in this way, qualifies as an opportunistic harvest and has perhaps minimal impact except in localized areas (see review of Berish [1998] next section).

But we have no gopher tortoises in eastern North Carolina. As such, we do not even have this option to catch snakes. Canebrake rattlesnakes (the lowland form of the timber rattlesnakes) must be found in much the same way as other snakes, by turning up debris or riding on roads. This is true also for diamondbacks and pigmies. Only the western (mountain) form of *C. horridus* can be taken in numbers owing to the denning activities of the snakes in winter, where large numbers of the sluggish ectotherms concentrate within rocky hibernacula. But there is no reason to believe that because timber rattlesnakes sometimes use dens, that they are dependent on them. In the greater part of their range (about 75%) mass denning is never seen. Thus even if some dens are pillaged (and dens have been pillaged for over a century), there is no reason to conclude that this has had wide impact upon the species overall. And bear in mind, no study such as that conducted by Berish (1998) for rattlesnakes in Florida has yet been applied to North Carolina, and we have no idea of the numbers of snakes taken in this way. Indeed, in light of her evidence (see further sections) it would be illogical to think that such activities are impacting North Carolina populations any more than they are affecting populations in Florida: the economic incentive is too low to make it worthwhile. At any rate, den collection would seem easy enough to control simply by banning the technologies (such as gas introduction into dens) that make it possible, but NCWRC wants the option to accuse any persons *possessing* the snakes as a potential "mass collector."

This is not because you "mass collect," or that "mass collectors" of snakes even exist in North Carolina; it is merely to satisfy the NCWRC that they *do exist* and are a threat (very important for their bureaucratic well being). Most of all, it satisfies their on own "ease of enforcement" practices. If it means taking away your right to the pursuit of happiness, then so be it (they never approved of that kind of happiness anyway). Pet hobbyists, herpetoculturists, etc., are looked down upon by the North Carolina State Museum herpetologists (i.e., taxonomists) who resent public interaction with what they view as *their* property (after all, they have unlimited permits to take them, you do not; see further sections). However, if you want to *donate* your catch to the State Museum, they will be certain to arrange a permit for you (as I shall later show).

Other than random den collecting of *C. horridus* (and satellite species such as the extremely common copperheads and racers that also gather in dens), the available technology for finding snakes in North Carolina is so extremely limited that it can't really be considered a valid "technology" at all. Accidental encounter is not "technology." And the rate of encounter of finding a snake the size of a pigmy rattlesnake among the wire grass, ferns and leaf litter of a large pine forest is practically zero. Only when populations of snakes become biologically abundant is it possible to find any snakes. Indeed, to this extent snake hunting is self-controlling. Once the snake population falls to a certain level, the rate of encounter falls with it, and it simply becomes impossible to find them, no matter what amount of time you are willing to devote.

A few hectares of woodlands may support 50 individual snakes of a dozen species, but the snake catcher, walking through all this wilderness of snakes, may search for days, or even weeks without ever seeing one. Raymond Ditmars recorded this phenomenon in his book *Confessions of a Scientist* (1937), as did Carl Kauffeld in *Snakes and Snake Hunting* (1957). In "Confessions of a Gaboon Viper Lover" (1992), I describe a snake hunt in Ghana, West Africa, where I was taken to within 10 feet of a large gaboon viper (*Bitis gabonica*), and even though the snake was pointed out to me by natives, it was not until I had advanced to within one yard that I was able to discern its cryptic outlines from among the matching colors of the forest floor. Like Ditmars, I have walked sometimes for many days and even weeks in the primary forests in South and Central America without seeing a common *Bothrops* species. Was I to conclude from this that these animals had been exterminated by man, or were in decline?

Seduced by the apparent ease with which television personalities like Steve Irwin, the "Crocodile Hunter," plucks dozens of snakes of all species out of thin air before the camera, naive members of the public (and some armchair herp people) have come to expect that snakes are lying all about everywhere in the forest, and sitting ducks for snake collecting humans. They do not realize that, because of the extreme costs that would be incurred by the production teams on these shows while waiting for a wild snake to appear (expenses for cameramen, sound crew, directors and script people), that the "reptile stars" are always *planted* on the scene for the human stars to find. The actor knows exactly which stone to lift, or in which tree to look (note how Steve Irwin or Dean Ripa or Mark O'Shea always seem to *walk into* the frame where the snake is lying; the camera has seen the snake well before the actor does). The heroic "captures" are cleverly organized and rehearsed like any Hollywood production. Indeed, my own performances on Discovery Television are no exception; and they are simply that, performances. Had Partridge Films, Ltd., had to wait on me to find a black-headed bushmaster they might have had to hang about at my elbows for about six months before we actually encountered a field example—at a cost of perhaps half a million dollars to get three minutes of film footage. In a show about Brazil's Atlantic Forest bush-

master (*Lachesis muta rhombeata*), poor Mark O'Shea must resort to finding the wrong subspecies instead, an Amazonian bushmaster (*L. muta muta*) from another part of the continent, evidently planted on the scene so that he could capture it on film. Always pays to have your star *first* before beginning production, lest he decide to cancel his contract. Most of the behavioral sequences (feeding, courtship, etc.) in these shows are filmed in zoos or in studio terraria designed to look like nature. When it comes to snakes, most so-called "documentary" wildlife television is as staged as any cowboy western.

If you do not believe hunting snakes is a difficult thing, then release even a large harmless snake in your yard and try to locate it an hour later. You will probably never see it again. For a good long uneventful search, turn the snake loose in your house, or even inside your car (I warn you, you may have to ride around with it for some weeks until it turns up!). This is a rule every amateur collector of snakes knows well, but one which seems to have escaped our "Scientific Council," CITES and friends, who perhaps did not have the benefit of a formal education in childhood snake catching.

As a result, snake collectors (and most all collectors of snakes) must resort to "gambler's luck" in order to acquire their catch. Riding up and down country roads in the hopes of spotting a snake crossing the road before it is struck by the car behind them, or rummaging through rubbish piles around abandoned buildings in the hopes that rodent populations have attracted a snake. The snake hunter is mostly a helpless fellow with little more than luck going for him. And he has only a very narrow springtime (or nighttime) window in which to look, before hot weather reduces the worth of even these limited technologies.

The "Scientific Council" warns us of the lucrative potential for collecting snakes in North Carolina—and postulates a technology so advanced that such an industry can literally "clean out" snake populations from wilderness areas. This is logically impossible. If it were possible, mankind, which has historically gone out of its way to kill any snake whenever one is encountered, would have long since exterminated every species. As would hawks and owls, far more efficient predators than man since the dawn of time.

The Council warns us that an example of timber rattlesnake can sell for up to $35, and then suggests this is adequate incentive for a person to go out and hunt snakes for a living. Only someone who never tried to catch snakes for a living could ever think this could be true. If the "Scientific Council" believes it is possible to go out and "catch rattlesnakes for a living in North Carolina," let us remind them what every herp hobbyist knows: it is by far cheaper to *purchase a captive born* snake from a dealer than to spend weeks in time and money in the fruitless endeavor of hunting for one in the field. The cost of gasoline alone expended in cruising up and down roads over a period of time in prime habitat would exceed by many times the amount of purchase for that snake born in captivity. People hunt snakes for fun, not profit. Moreover, a captive born snake of any species is worth several times what a wild caught one is valued at on the collectors trade. When we contacted several Florida reptile dealers asking them "how much they would pay us for a wild caught canebrake rattlesnake" the best price we could negotiate was a figure of between *eight and 15 dollars*; however, few were willing to buy more than four or five, and many would not buy them at all. "That's about all we can sell for now," most responded; or "we already have four of five on hand and haven't moved those yet. Maybe next month. Let me take your number. . . ." Most advised us that in the future we ought to look for *captive born ones* if we want to get into the reptile dealing business!

Over the years I have calculated that the amount of gasoline required to find a wild canebrake rattlesnake averaged between $20 and $100 (depending on my "luck") not including food, accommodations, and from 8—60 working hours of my time. As such, even though I live at the edge of prime habitat, figuring in expenditures and my own time at minimum wage, finding a $10 rattlesnake would cost me well over $100 before I was done; if my luck was bad, as much as three times this amount. These figures have not changed much since 1970. In western North Carolina, one has a better chance of finding a rattler if one is willing to climb mountains and look for dens in springtime. But let's face it, looking for rattlesnake dens amounts to plain ol' *mountain climbing*! This is unbelievably hard work for a $15 snake that can also bite and kill you. Even an adventurous 17-year-old boy will find it far more far more lucrative to keep his part time job at Burger King: a fact that most young snake enthusiasts soon find out, to their dismay.

Someone with greater ambition, attempting to actually make money at this sort of work in North Carolina by sending his captures to out-of-state dealers, will soon discover that the market price on *numbers* of specimens (as opposes to individual specimens) becomes correspondingly reduced as supply meets demand. Moreover, with all other expenses, it can cost more money than it is worth to transport (e.g., by air freight) the animals to the out-of-state dealers, most of which are in south Florida, 800 miles away. To send larger numbers of the animals will to some extent offset the price of freight, but the price you can command for the snakes also goes down, the more you have to sell. If you are lucky you can get the dealer to pay the freight, but this money will of course come out of the total price you negotiate.

Timber rattlesnakes are hardly animal rarities, and anyone who wants one has either already got one, or can get a captive born specimen from a friend. Glades Herp, the world's largest dealer of venomous snakes, reports selling a total of 200 *C. horridus* last year, but only about 50 of these were true "timber rattlesnakes" (the other approx. 150 were the southern "canebrake" form). None of the timber rattlers came from North Carolina, but were from Kentucky and Oklahoma. Three-quarters of all the *C. horridus* they sold were captive born.

Nor is the diamondback rattlesnake a rarity. Today as 20 years ago, these big rattlers, if adult and wild caught, still command a very low price. So low, in fact, that the barbarous and reprehensible rattlesnake round-up people in Georgia can get more money for the meat ($16 per coil) and the skin than for the live animal! (Defeating the oft-printed remark that "the diamondback population has been affected by the pet trade").

The "Scientific Council" imagines that the demand for such animals is infinite. In fact, there are only so many people in the world willing to own a snake that can easily kill them. In total, probably less than 400 eastern diamondback rattlesnakes were sold last year in the entire live animal trade in the U.S. (pers. coms. with reptile dealers and long familiarity with the business myself). About half of these were sold by the largest dealer, Glades Herp. Of these 200, about 150 (75%) were captive born.

By the most parsimonious estimate, the total *wild* population of eastern diamondback rattlesnakes in the U.S. cannot number less than 100,000 individuals and may perhaps exceed a million (two snakes/sq mi of appropriate habitat). With only 400 examples sold, how can we say that the diamondback and the even more common timber rattlesnakes are being impacted by the pet trade?

We can because Randal Wilson says so. We can because the "Scientific Council" are august individuals with institutional connections, and even though they do not sell snakes and do not approve of others doing so, the knowledge of the "Scientific Council" about a trade they have never dealt in or investigated cannot be gainsaid. Nor should the fact that they have done no scientific studies on the numbers of populations on these snakes and their natural impacts deter us from following them blindly over the edge of a cliff.

Paul Moler, wildlife biologist for the Florida Fish and Wildlife Conservation Commission, considered rattlesnake harvests in Florida insignificant. "We investigated all this," he said, "and found that most snakes are gathered opportunistically, not from people deliberately looking for them. Whether as live animals or for the skin trade, this is a dispersed harvest based mostly on nuisance animals. . . . The snakes are found around people's houses or on roads. Very few come from remote areas or in deep woods. The rattlesnake is an invisible predator that is simply very hard to find. Even the three (now two) Georgia rattlesnake round-ups do not produce more than a combined total of about 500 examples annually. This is not an impressive harvest when one considers how many rattlesnakes must be out there, judging from road kills and the much greater size of opportunistic harvest [see Berish, 1998, next section]. Present harvest amounts in Florida do not seem to be affecting populations of these animals because the amount seems to remain constant from year to year. We concluded that, given the overall impacts, deliberate human taking of snakes wasn't all that significant, and perhaps not worth the expense of regulating."

As a means of furthering my study, Moler advised me to look at an important paper written by Joan Berish.

The Berish Factor

Probably the most convincing evidence so far that the "mass collector" of snakes is a fiction, and confirming the futility of trying to control what is really only an opportunistic persecution (collection) and not an intentional one, is in the illuminating study by Joan Diemer Berish (1998), published in the *Journal of Herpetology*. I quote from her abstract:

> Information regarding the harvest of eastern diamondback (*Crotalus adamanteus*) and timber (*C. horridus*) rattlesnakes [for the live animal and skin trade] was gathered from commercial dealer reports, phone interviews with dealers and collectors, and examinations of 714 harvested rattlesnakes. Many individuals killed and sold rattlesnakes in north Florida, but relatively few sold snakes repeatedly, and most brought in one snake per visit to a dealer. Collection occurred primarily during the spring, summer and fall. Most of the 98 interviewed collectors opportunistically killed rattlesnakes on roads, in yards, and less commonly, in woods; only five indicated that they actively hunted for rattlesnakes. Many interviewees indicated that they would kill rattlesnakes that they encountered, especially near human habitations, regardless of potential monetary gain.

The "mass collector" of these snakes was evidently a popularized myth. Mass collection was the result of opportunism among masses of people who would have killed the snakes anyway if they had not collected them. Hence, harvesting rattlesnakes was a by-product of expanding human encroachment; that is, increased human encounter in developing areas. The fact that very few people collected the snakes in winter suggests that were not taking them from winter refugia (e.g., tortoise burrows, stump-holes), but were simply finding them by chance during their active period.

"These findings [in north Florida] point to an opportunistic harvest rather than intentional hunting of rattlesnakes," Berish writes. And she notes further that while intentional hunting occurred (usually when the snakes were predictably at their winter retreats, e.g., gopher tortoise burrows), it was confined to a few individuals and its impact minimal to overall populations, although it could affect populations in some localized areas.

Most unexpected of all, several early popular accounts suggested that "harvest pressure on Florida's rattlesnake populations was considerably more intense during the mid-1900s" than today. An age well before venomous snakes became an item collected by hobbyists. She remarks, "Snyder (1949) recounted the evolution of the rattlesnake trade in Florida and estimated that 120 professional snake hunters captured rattlesnakes full time during the late 1940s. He noted that the market in 1948 absorbed more than 20,000 rattlesnakes, 40% of which were bought by Ross Allen's Reptile Institute in Silver Springs. In 1953, Ross Allen estimated that he had received about 50,000 rattlesnakes over nearly 28 years (Klauber, 1972)." Compared to these harvests, Greene's (1997) remark of 4000 timber rattlesnakes sold in three large northern states over a 30-year period is a just a drop in the bucket.

Significantly, none of this activity seems to have resulted in a decline in rattlesnake numbers. The snakes were still being found in about same amount, year to year.

The work of Kevin Enge

If the "Scientific Council" have conveniently ignored Joan Berish, they have taken no note whatever of biologist Kevin Enge's 102-page treatise, "Herptile Trade and Use in Florida," prepared for the Florida Game and Freshwater Fish Commission.

Enge summarizes, "Commercial collection of most herptile species probably has negligible impact on populations when

compared to such threats as habitat destruction, alteration of hydrologic regimes, and highway mortality."

He goes on to note that about 7 km of new roads per day have been constructed during the last 50 years, leading to an increased highway mortality of wildlife, and remarks a 50% loss in forest cover. "In south Florida, the principal threats to native herpetofauna identified by Wilson and Porras (1983) in order of importance were: (1) destruction of natural cover; (2) manipulation of the hydrologic cycle; (3) destruction of man-made cover; (4) naturalization and spread of injurious exotic plants; (5) vehicular traffic; (6) biocides and other forms of pollution; and (7) man-generated fires."

Ranked last in order of importance were outright killing, followed by collecting and competition with exotic herpetofauna. It would seem that when a scientific approach is used, the effects of collecting always appears negligible. But when science is not used, the effect of collecting is always construed to be high. Pathology thrives on emotionalism.

Most revealing of all was that both the Berish and Enge studies dealt with Florida—*the state most likely to be affected by commercial trade, because it has by far the largest number of herp dealers in the nation.*

Export: where the real money is?

If the domestic market does not hold much hope for men with hooks and snakeproof boots, what of the "lucrative export market," which USFWS warns us has even higher dollar per pound value than cocaine? Surely selling rattlesnakes abroad is where the real money is.

I rang up Robert Onda, Supervisory Wildlife Inspector of the USFWS at Kennedy Airport. With Kennedy the world's largest gateway to the European frontier, and sitting square in the middle of the timber rattlesnake populations of New York, New Jersey and Pennsylvania, surely he would have some insight. Here is Mr. Onda's "damning evidence" against the pet trade:

"Rattlesnakes . . . exported? Negligible. So few in fact, I can't remember the last shipment. We don't see them much any more these days."

"WHAT?"

"Hardly ever see them."

"Well, now, do you mean timber rattlesnakes, or diamondback rattlesnakes?"

"*Any* rattlesnakes," he said. "I can't remember the last time I saw a docket."

And so the world's largest port of entry can't even remember the last shipment, so few rattlesnakes went out last year.

I got back on the phone with Glades' Herp. As the world's largest dealer in venomous snakes, they would certainly have sent a few timber rattlesnakes overseas lately.

"Export? Uh . . . maybe 100 . . . *in the last five years.*"

"But that's only about 25 per year," I said.

"Yeah, that's all. Mostly captive born, though. They're breeding them in Germany, of course. We've got European competition."

These facts will be sure to disappoint the USFWS propaganda team, who never bothered even to check their computer records before informing us that a billion dollar market in exported domestic serpents was ravaging our great land.

So what it comes down to is this: USFWS, CITES, and friends, are spending millions of your American dollars to chase opportunistic snake collectors (many of them school age kids), for snakes whose total gross value is not much higher than the salary of one high ranking USFWS official. Indeed, USFWS must spend more money on envelopes than America sells live native rattlers. And far more money on propaganda to implant the *absolute lies* they dream up for the rest of us to read about in our newspapers, and keep themselves fat on our money.

And the "Scientific Council" are part of this lie. Fabricating their pathologically insane "science," not bothering with facts and figures, and content to fabricate what they cannot find, they are like any propaganda organization relying on panic to motivate the masses. Condemning the hobbyist trade out right on principal, why should they look farther than their own prejudices, if only to disappoint themselves with the truth? Perhaps too great an intimacy with this knowledge might make them suspect of untoward affiliations among their colleagues. In some professions, especially moral crusades, it isn't kosher to know too much about *The Enemy*. The "Scientific Council" must *affect* the look of scientists, even if they do not use science. They are not supposed to have inside knowledge about a trade they are meant unanimously to condemn.

We ask the "Scientific Council" to show their own facts and figures on this point, since I have no doubt they will dispute mine. I also would like to ask them (as I have been asking them for the past years) how a person could go about making a living collecting North Carolina snakes? (I would like to get into this business myself!) As a means of supporting my contention, I challenge any member of the "Scientific Council" to back up their statements and show us even one single individual who is currently making a living collecting native snakes of *any kind* in North Carolina!

The "Scientific Council" ought to spend more time asking questions before fabricating answers. They should determine, (1) what constitutes a snake population; (2) how many are saleable in a commercial trade market; (3) how will increased supply reduce demand and unit cost of the item, so as to no longer justify the expenses for the collecting activity. Knowing these things, they could then determine, quite simply, (4) *what is a sustainable population usable as a resource by North Carolinians*. They could then determine what the quota for a collecting permit should be, and how much to charge the collector for it in order to regulate this miserably insignificant trade that is their pathological obsession to control. But none of this has been done. They are paddling in a boat in the

dark—and towing state government along with them.

The Scientific Council postulates a lucrative trade in wild snakes going on beneath the noses of all investigators but themselves. We have questioned not only the existence of this "lucrative industry" in North Carolina, but the very possibility of its existence on the basis of (1) poor technologies for collecting snakes; and (2) low financial incentive given the time and cost of implementing the technologies.

Judging from the number of applicants for North Carolina collecting permits last year (about 200 persons; source Alicia Armstrong, Nongame Management of North Carolina Wildlife Resources Commission), and the vast majority of these only collecting as a hobby a few days out of each spring year, and these 200 persons spread out over a state 52,712 sq mi in area, the overall effect of these "Sunday snake catchers" is assuredly nil. To illustrate this, let's assign 1 sq mi to each of these 200 collectors and put them to work collecting snakes of all species. Let's give them 8 hours or so on a Saturday to fumble around in the woods and report back at 5 o'clock with their catch. Will we have gained even 200 snakes at the end of this period? Perhaps. But after assigning each of them a square mile in which to hunt, we now have 200 square miles of woods in which they are collecting, and if 200 snakes can be regarded *as impact* in an area of 200 square miles, then our definition of impact is exceedingly bizarre, given that the total numbers of snakes of all species in 200 sq mi of wilderness must be in the millions.

Now let's imagine these 200 collectors spread out over an area of 52,700 sq mi. *Each collector will be assigned an area of 263.5 sq mi. . . .* I will stop here, because it is getting ridiculous. And so the notions of the "Scientific Council." The impact of one person on an acreage of this size, competing with the thousands of hawks and owls and snapping turtles and snake-eating snakes, roadways and development, is so low that there are not enough zeros to put before the decimal in the percentage rate column.

Thus to state that the comparatively tiny and innocuous trade of these few hobbyists has stressed overall snake populations in North Carolina is both illogical and unscientific. And yet it is just here, by attacking this barely detectable intensity (and the rights and privileges of these very few people), that the "Scientific Council" plans to begin "solving" our problems with "declining herptiles."

If the rattlesnake or any other species of snake ever becomes extinct in North Carolina, it will not be because of pet hobbyists. As this report will show emphatically.

Slaughter by the American dream: Roadway deaths

Thus far I have attempted to identify what *isn't* the problem. In these next sections I will endeavor to isolate the real virus, and the real sickness.

The disease is near at hand; in fact, it is as close as our own car keys. For where do our environmentally dangerous pet collectors congregate to perform their environmental depredations? Answer: the roadbed. And this is where the logic of the Council becomes most wildly degenerative: the animals that the "Scientific Council" would begrudge the public to own are being collected from rural highways before being run over by cars!

Which brings us to a sobering realization—one which we have all the time been aware of but have simply ignored because it was almost too terrible to consider—and moreover, a problem to which all persons, even PETA members and NCWRC personnel, are contributing as much as the next. For if PETA and friends really cared about animals they would get rid of their cars and take up bicycling. *The most significant killer of snakes and all wild creatures upon the earth today is roadway death.*

In a different class from developmental encroachment, which eradicates wildlife at once and *forever*, roadway death is a continual process. In North Carolina, the roadway is a monster with 97,000 linear feet of tentacles that reach into every ecological system. Profiting from the natural movements of all wild fauna, and the accidental encounter of its slaughterhouse wheels, its gargantuan 24-hour, 365-day appetite make it the world's greatest predator. Slow-crawling creatures like turtles and snakes (whose elongation makes them unavoidable if inadvertent targets) would appear to be the main prey. Most are probably already doomed once reaching the "gallery forests" that line our roadsides. Advancing from less spoiled ecologies (or pressured to do so by advancing development and agriculture), reptiles may adapt to roadside woods for a little while, but once crossing the yellow line, the chance of survival is small and if repeated, nil. To inhabit the "gallery forest" at all puts these beasts in that statistical gray area where eventual death seems inevitable.

We can state unequivocally: *The non-herptile-collecting public will in one day in the United States kill more herptiles while out driving their cars than the combined total of all herptile collectors in the United States will collect in their entire lifetimes.* To persons accustomed to blaming pet collectors for the ruination of the universe, this may seem a strong statement to make, but analysis will reveal that it is both logical and consistent with the available data. From other literature and my own efforts, I estimate a minimum of 100,000 roadway deaths of reptiles *per week* in North Carolina alone (based on 1.2 carcasses per mile multiplied by 97,000 linear miles of state maintained roads, during spring, summer and early fall periods; the 1.2 carcasses per mile figure is based on a suburban survey, expanded to include rural roads; it is therefore an extremely parsimonious rendering, for the roadway death figure on rural roads can jump to as many as 50 reptiles per linear mile *per day* and these grossly higher figures have not been included).

With frogs, toads and salamanders this figure can skyrocket to nearly 2,000,000 deaths per week (19 individuals per linear mile). As many as 500 freshly dead frogs and toads can be found per mile per week in some areas. Persons interested in investigating further the phenomena of road killed herptiles and other wildlife should consult the following references: Adams and Geis, 1983; Shine, 1991; Goodman et al., 1994; Rosen and Lowe, 1994; Fahrig et al., 1995; Fowle, 1996;

Krivda, 1993; Means, 1997.

I quote from Fowle (1996):

> I monitored a population of western painted turtles in the pothole region of Mission Valley (western Montana) in response to local concern about intense road kill mortality on S. Highway 93 and a proposal to widen the highway. Road killed turtles were collected May through August 1995 along a 7.5 km section of U.S. 93. . . . A total of 205 turtles were found DOR (Dead on Road). Additional turtles were probably killed, but did not remain on the road for collection.

That's 205 turtles *of a single species* killed in a four-month period along a mere 4.5-mile section of road (1.7 turtles killed per day over the 120-day period of the study). That figure does not include snakes, lizards, frogs, salamanders, or even other species of turtles. . . . Consider that there are 156 different species/subspecies of herptiles in North Carolina! My figure of 1.2 reptiles/mile killed per week (0.17 per day) to a total of 100,000 per week is then a highly conservative figure for North Carolina as a whole.

But if 100,000 reptiles per week seems like a lot, multiply it by their 26-week active period and you get an astounding 2,600,000 examples of all reptiles killed per year by automobiles! If even 1% of these are rattlesnakes you still have a phenomenal 26,000 rattlesnakes killed on roads each year (or 13,000 at .5%).

Beane and Thorpe (1997; in Griswold, 2000) reported that road hunting of southern hognose snakes (*Heterodon simus*) was by far the most productive method of finding them. Of 208 specimens they and their researchers have encountered on roads since 1985 *only 13 percent were alive*. An amazing 87 percent were dead. Not a very good argument against people rescuing them from the road, or for making laws to protect them from pet hobbyists.

Figures like these make a "war against commercial trade" seem like the silly, scientifically "pathological" thing it is. The relative insignificance of the trade in North Carolina venomous snakes is not difficult to discover: I simply did as Berish (1998) did and contacted North Carolina reptile sellers, asking them how many they sold, and how much money they would pay for them. But the Scientific Council has not even troubled themselves to do that much, and no such survey exists. For the record, in 1998 I reported these findings to all 11 members of the "Scientific Council," with a lengthy critique of their ideas. To date I have not received a rebuttal, or a single reply from any of them. They simply were not interested in my data, or anyone else's.

Furthermore, I estimate that the total trade in *all* North Carolina reptiles and amphibians accounts for less than .01% of all herptiles that are removed from the wild by:

(1) natural death and predation
(2) habitat destruction and degradation
(3) deaths on roadways

I place these in order of their statistical importance. However, it is conceivable that conditions 2 and 3 have actually *replaced natural death and predation* as the greatest overall killers—indeed, a bizarre thought only tenable in a world ecology gone completely awry.

By comparison with these forces, deliberate persecution of snakes (and other animals) is of a level scarcely worth mentioning, since it is only rarely that man, snake, and the means to kill the snake, find themselves together at the same time. Owing to nature's good sense in enabling them to hide, snakes are just plain hard to find. If snakes were so easily exterminated by persecution, they would already have been so, for they have been under continual pressure by far more efficient predators than man since the dawn of evolution! An overwhelming 99.99% of all herptiles that do not die from natural causes are removed from the wild through: (1) death by habitat destruction and degradation (from development and pollution); and (2) death through being run over on our highways.

And there the matter rests. Given the data at our disposal, and with the scant number of people collecting herptiles in North Carolina, the sudden urgency to "protect snakes" from piecemeal collection is both irrational and overstated.

And yet if roadway mortality tells us nothing else, it puts into perspective at least what constitutes a *significant* harvest. Roadway mortality remains the best tool we have to determine what is or is not a significant human usage of reptiles, amphibians and other wildlife.

Reminiscence as demography

With the overwhelming majority of all reptiles being collected off our highways before being hit by cars, the degenerated science of the "Scientific Council" becomes most evident. And yet "road cruising" is the standard technology most herptile collectors use to find snakes (Kauffeld, 1957; pers. obs. and pers. coms. with 31 herpetologists and collectors who all use the "road cruising" method to collect herptiles). Those that are not collected from roadways are collected from *near* roadways, around human dwellings, under lumber, tin, and trash debris, where their proximity to roads makes them prime candidate for roadway death (J. Brewer, G. Tregembo, S. Seashole, C. Hiatt, 1997 pers. com.; and pers obs. for 30 years in North Carolina). The "Scientific Council" does not acknowledge these facts, although its Chairman, Alvin Braswell, must certainly be aware of them—*for these are the methods he himself employs to collect reptiles for the Museum* (pers. coms., Alvin Braswell, 1993–1998).

In fact, the "Scientific Council's" entirely anecdotal information about wild populations of reptiles in North Carolina tells us little more than what sort of animals State Museum personnel have found on the sides of roads, for this is primarily their own method of collection. Except in very limited localities, true wilderness demographics of herptiles in a state the size of North Carolina are outside the scope of what any one or even 100 researchers could do, and would require many years. When I asked Alvin Braswell how he determined that populations of spotted turtles had declined in a specific area (one of several areas which he lets stand as representative for the entire state), he responded, "We went riding on the road for two whole days last spring and we didn't see any." He

concluded from this that "a certain Yankee he knew of had probably been down here raiding the area."

Perhaps so. And as likely (from this type of reasoning), there may have been other causes. What little data that has been provided by the Council seems based on this sort of "hit or miss, shooting from the hip" approach to demographic assessment. The "Scientific Council" points to certain localities where Museum collectors are accustomed to collect snakes and other herptiles, and because not finding the numbers expected from previous ventures, have surmised an overall decline within the state. But this is a decline they cannot factually explain, based on an apparent lack they cannot truthfully determine. If the lack truthfully exists, it could result from numerous other ecological or temporal variables, or even their own inabilities to find the animals. Not being able to explain it, they *choose* (i.e., fabricate, because they do not scientifically determine it) a causative agent of barely detectable intensity (the human persecutor/pet collector) as responsible, and pressure government officials to take action. Indeed, the laws that result can have no measurable effect because they do not control significant impacts.

The "Scientific Council" has not admitted within their data base the more likely cause of their perceived decline. Since their data itself is the result of failed road hunting attempts to find snakes, they have not admitted that the perceived *decline may be in itself nothing more than the result of continual faunal exposure to many years of continual roadway mortality and the secondary alterations of habitat (development) which roads bring*. Our surveyors, who find they have had unlucky hunting in a region formerly populous with herps, are basing their expectations upon a previous era when the roads were *new*, and themselves, new, happy youths first venturing into these pristine areas. A case of the aging herpetologist syndrome colliding with the aging roadside syndrome, and producing a predictable discovery: decline. These people are simply *reminiscing* about what they could catch in these localities prior to 20–30 years of continual highway slaughter. But reminiscence is not demography. All the "Scientific Council" can do is argue that there are less of these animals because (1) for some unknown reason they have found less of them on the days they went looking; and (2) because there are less woods nowadays for the animals to live in. In the latter instance, even the term "decline" is misleading. Would the Council have animal populations remain the same as formerly in a habitat *half the size it used to be*?

With an almost manic fixation the "Scientific Council" ignores the obviously significant causes of herptile depopulation in favor of a single-minded pursuit of an "individual human persecutor" — a cause no scientific validation can feasibly support. Its authors do this on the basis of pure speculation, not on any direct study of the effects of commercial trade by piecemeal collection, while ignoring the compelling, urgent and important impacts, such as: (1) development and clear-cutting of forests (including pine-farming and agriculture); (2) road building and roadway death; (3) effects of chemical and fecal pollutants, pesticides, golf course fertilizer runoff, highway runoff, agricultural fertilizer runoff, chemical herbicides used in pine tree farming, hog spill wastes and other wastes from Intensive Livestock Operations. Wouldn't these constitute a more likely cause for any perceived decline in reptile populations than a few pet enthusiasts? Powerful constituents continue to pollute rivers and streams in North Carolina on a massive scale. Large scale polluters have already dumped trillions of gallons of pure hog waste into our waterways and *continue to do so*; swamps and bogs and other vital wildlife habitat continue to be destroyed while regulations like these target mere pet hobbyists. Does the "Scientific Council" really believe that the pet hobbyist poses a comparable threat? Are there so many people keeping rattlesnakes in their homes?

Clear-cutting of forests continues at an unprecedented rate throughout the south. Forest cover in southeastern North Carolina alone has been reduced by about half in less than five years, surely one of the most devastating environmental catastrophes in state history. All this has been done and continues with full approval of the forestry department, which must count itself as complicit. The pine monocultures offered as replacement for natural woodlands cannot be considered habitat. Champion International and other northwestern paper companies have logged out 90% of the national forest land it had access to in Montana and have since relocated operations in the south (*Outdoor Life*, April, 2000). With their vast monetary influences (called "campaign support") they have managed to convince state governments throughout the south that clear-cutting, formerly forbidden, is now "sustainable." Sustainable for whom? For themselves, obviously. But not for long. For if clear-cutting really is sustainable, why have these gigantic northwestern pulp industries had to *relocate* to the south? Answer: like a vampire exhausting the blood supply of the host, they have had to move on to the next willing victim.

And willing we are, for there are big bucks in this mass death.

Why has the "Scientific Council" not pursued these causes *with the same zeal* as they have applied to the obviously low-impact piecemeal collector in order to better preserve reptiles, like game and fishes, as a *usable resource* for all North Carolinians? Answer: because the piecemeal collector is an easy target. Organs like the NCWRC are anxious to comply, for it gives an impression of being "on top of the situation" (or they may actually think they are on top of the situation). And herein lies the greatest danger; for we are *not* on top of the situation. We are not even remotely attempting to fix the situation. We are only deluding ourselves with an outmoded ESA that things are being put under control, and from there encouraged to support more such degenerated theories and programs that, wrong at base, can only get more wrong as the incorrectly diagnosed disease continues to elude our attentions.

How many snakes does a hawk eat? How many hawks?

Circa the 1960s snakes were so common in some parts of North Carolina that many people simply kept out of the woods for fear of sight of them. This is not an exaggeration. Large wetland tracts had not yet been drained for pine deserts, and in the Green Swamp one could catch literally hundreds of water

moccasins in a single day. The land literally "bled" fish and frogs. Large highways were almost unknown, and most rural two-lane blacktops were scarcely traveled. Within a few miles of town (Wilmington, North Carolina) it was possible to catch everything from scarlet snakes to pigmy rattlesnakes, if one was willing to go out after dark and ride slowly through the steam-haze rising off the hot summer roads, most of them newly built through otherwise pristine areas.

These roads are still there, but their character has completely changed. The pristine habitat has been heavily logged a dozen times, and gradually replaced with more and more pine desert. There are less fish in the streams, and less snakes along side of them. Water snakes (*Nerodia*), which were once so abundant as to weigh down the branches of swamp willows, are now only sporadically seen. The "country," if it can be called that anymore, is overrun with subdivisions. City commuting is a way of life for people that would once have been branded as "hicks" on account of where they lived. Now it would seem the hick is disappearing along with the snakes! Family farms have been replaced by huge industrialized complexes where pigs are manufactured, not merely farmed, and in a state where hogs outnumber human beings, a steady stream of porcine sewage outflows from excrement lagoons the size of football stadiums into every river tributary. An endless hum of motorcars drowns out the humming of crickets and frogs even in remote backwaters, and the nights never get completely dark for the glare of lights from town and city. The dream of western Europe has been fulfilled upon the new continent.

There is another change in the character of the countryside: it is the proliferation of hawks and vultures. The rise in vultures is no mystery: the roadways are littered with animal carcasses, and as any surveyor of road killed herptiles soon learns, he must contend with avian scavengers as the number one threat to his researches, getting up early enough in the morning to count the nightly road kills before the buzzards get there first and gobble up the evidence.

Since the ban of DDT pesticides, the rise of hawk populations has been uncanny. Having few natural enemies, and being better equipped to dodge cars than land-crawling predators like snakes (their principle competitors in the food chain), hawks have gone from being a rare sight to one of the most commonly seen birds in North Carolina. The mostly bird-eating Cooper's hawks (*Accipiter cooperii*) have reached such numbers as to threaten populations of bobwhite quail. As a result, a former chief at the NCWRC has recently asked formally they be removed from protection status.

So we must ask: how many snakes does a hawk eat? And how many rodents that *would* have been the prey of snakes, are being eaten by populations of hawks that have, to all appearance, got out of control? Studies tell us that red-tailed hawks (*Buteo jamaicensis*) make reptiles, mostly snakes, up to 41% of their diets (averaging 7% overall) (Johnsgard, 1990). Red-shouldered hawks (*Buteo lineatus*) make reptiles and amphibians about 29% of their overall diet (with mammals 65%).

It seems safe to say that a population of hawks large enough to threaten the quail population must be making inroads upon snakes as well. How many hawks are there? Riding the highways one can easily spot from between one and 10 raptors per linear mile. Using the parsimonious one raptor/sq mi, we must have at least 52,700 birds that eat snakes in North Carolina. How many they eat is unknown, but allowing one snake to each bird per week during the 35-week annual active period of snakes, and we have a total of 1,844,500 snakes eaten by hawks each year in North Carolina. This figure may be high or it may be low—but it serves to implicate hawks at least capable of a considerable take. It also serves to illustrate by comparison how insignificant the intentional persecution of snakes by human beings must be in North Carolina.

If even 2% of these 1,844,500 morsels are rattlesnakes, then we can make a guess that roughly 36,890 rattlesnakes (probably juveniles or babies) are eaten every year in North Carolina by hawks (1% = 18,445 rattlesnakes). In looking for reasons for "reptile decline," we must not ignore the fact that in the snake hunting heydays of 30 years ago, there were a hell of a lot less hawks to compete with. Indeed, the extraordinary snake populations of the 1950–60s *may* have been the anomalous result of the diminished raptor populations of the preceding decades (and/or other factors). It is not inconceivable that what we are seeing in the present day represents a more normal snake population than existed during that time of low raptor activity. But there were also a lot less open fields for hawks to hunt in those days (from clearcutting and agriculture), and a lot less roads piling up carrion.

A contribution of ignorance: The popular herp article

The object of this article so far has been to detail some remarkable instances in a moral epidemic that has been excited, at once by one cause and sometimes by another, by the infatuations of imitative and gregarious men and women. One does not have to search far through human history to see that the "Scientific Council" is not an isolated phenomenon. The bandwagon fever, with its self-promulgating "protection racket" appears to be mushrooming up in all states simultaneously, as though orchestrated by a single hidden hand. And yet, while there is self-aggrandizement involved to be sure, the hidden hand unmasked would probably prove to be nothing more conspiratorial than plain old human self-deception. I have no doubt that, at base, the "Scientific Council" really believe they are doing a good and worthy thing. And their delusion happened to them just as it happened to the rest of us, by a long and venerable accretion of nameless origins.

Deluded by the anti-pet propaganda emanating from highly funded organizations like PETA and their mouthpiece, the USFWS (which makes no secret that their "goal" is to shut down the hobbyist pet industry), a host of well intended literature has arisen to supply the timeworn catch-phrases by which a mostly disinterested public becomes conditioned to accept opinion as truth.

Pick up any popular book or article on the subject of vanishing wildlife, and unless the writer is very astute, you will soon observe where his emotionalism takes over and his logic walks out. Even the hobbyist literature is quick to implicate

the insidious pet trade as a major player in the wrecking of the global ecology. This should not seem strange, for probably no literature in man's history, outside of certain religious tracts, prints more unsubstantiated information as "fact" than this latest extension of the "pet lover" venue. Here every man, woman or child who has ever kept a pet frog in his toilet can qualify as instant "author," assured of instantaneous acceptance of his manuscript submission. Relying not on precision, but on readability, carrying the reader from generality to generality while the writer inserts his own amusing insights and opinions, the popular herp article is booming business for the few successful magazines that publish this sort of "tabloid science." Fed on a diet of such material, the delusions of the readership from which the writers are themselves recruited become self-generating. Careful examination of such articles, however, almost always reveals extraordinary inconsistencies.

Example: I have just read in *Reptiles* magazine (May 2000) in an article by Dick Bartlett, how the eastern diamondback rattlesnake in Okeetee (in the South Carolina low country) has been depleted by "commercial collecting for the pet and skin trades." Bartlett, a capable writer with long experience with snakes is more conscientious in his treatment than most, for he does mention, within the same breath, that "highway fatalities and the killing of the rattlers by landowners" also contribute. Nevertheless, it is the pet trade he mentions *first* (he has evidently not read Enge, 1993, or Berish, 1998). Whatever his intentions, by his slipped pen he implants in the reader's mind an idea that the pet trade constitutes a significant, perhaps *the most* significant, impact on these snakes. Granted, the author may not think the pet trade *very* significant himself. He has only mentioned some causes, and not necessarily in any particular order. Indeed, were he to go about actually ranking these impacts according to their level of importance, he might soon persuade himself to rewrite his remark and leave off "pet trade" entirely, or else consign it to some appropriate marginalia. However, he need not seek precision in his writing, for it is by now the habit of readers to expect this idea as politically correct verbiage. Since almost every other popular article mimics the idea, the writer is free to make his statement as "fact" without much fear of being called out. "How can it be wrong?" the reader asks; "it is printed in hundreds of other articles . . . and I have seen it on TV." It is a perfect example of Imre Lakatos' definition of a "degenerating program," i.e., a theory fabricated (in this case by the popular media) to accommodate a known fact. The fact that *some* snakes end up being sold means (in the pathological approach) that *many* snakes are being sold, ergo, a *significant* number are being sold.

Reading the Bartlett article, however, we find it mostly self-refuting. We learn that, while the pet trade (among other causes) has caused the diamondback to disappear in Okeetee, the canebrake rattlesnake is still numerous, copperheads are common, *as are true pet trade items, like the Okeetee corn snake, greenish rat snake and king snake.* In short, better pet trade items are abundant, while the least of all hobbyist trade items, the highly dangerous eastern diamondback rattlesnake has been depleted by the hobbyist market!

There is more: We learn that Okeetee is "legendary for its population of scarlet kingsnakes" but that "probably because so many collectors have destroyed so much microhabitat far fewer are being seen." Yet in an earlier paragraph the writer informs us that Okeetee is closed to herp collectors (it has been so for over 30 years; pers. obs.), and that "today there is virtually no access to the area to any but hunt club members." So where in three dimensional space are the "fewer scarlet kingsnakes" being seen, and who is collecting them—the hunt club members?

He gives us a hint in a previous paragraph: "With the private lands closed, each spring there is still a parade of herpers plying the public dirt and paved roads of the region hoping to see a corn snake, a canebrake rattler, or even a greenish rat snake." Evidently, if one wants to see a scarlet kingsnake in Okeetee, or a diamondback or any other snake, one must "ply the roads" in order to find them. The "destroyed habitat" has been off limits for a quarter of a century. Herp hunters cannot enter the private lands (only a select few have special permits), and yet without being able to do so, have yet managed to destroy the microhabitat of at least one species (the scarlet kingsnake), and deplete populations of another (the diamondback rattlesnake) to be sold off as pets.

One can only conclude that if this is going on, it is going on under the noses of a disapproving hunt club. And yet anyone who has every tried to enter the Okeetee lands without a permit knows just how difficult such a feat is. All but the Tilman road is gated; but try to park on the side of the road and attempt to walk into Okeetee lands and you will be met by a barrage of local hunt club members (or their friends) who will either have you arrested for trespassing or throw you out forcibly themselves. *They know why you are there.* One could at best hunt a very small area of roadside habitat along the Tilman road, within a very short time frame before your timely arrest.

Bartlett is a capable writer who has written many fine popular articles, but the advent of the popular herp article with its expectation of good light reading has erected opinion to the level of factuality, and all the misconceptions this entails. And Bartlett has not actually lied: probably *some* diamondbacks from Okeetee are been picked up off roads and end up in the pet trade. And perhaps *some* individuals have slipped into the woods and damaged some roadside habitat. But to state that snake collectors have had a *significant* impact in Okeetee is to ignore some pretty big obstacles: (1) that herp collectors have not been allowed there for 30 years; and the rattlesnakes are still apparently "declining"; (2) that snakes in the roadbed are already targets for mortality so collecting them makes no difference; and (3) the sheer size of Okeetee. With nothing portrayed in its correct proportion, the effect is once again that of a devilish pet industry gone out of control and wrecking the natural order of the world. Like Greene (1997), who devoted almost two pages to rattlesnake den destruction and only a couple of sentences to roadway mortality and development, he has (no matter what his intention) given us to believe that deliberate persecution of an invisible predator has pushed it to the brink of extinction, when neither cause nor effect can be

shown in evidence.

Is the diamondback disappearing in Okeetee? I have been going to the South Carolina lowlands off and on for 25 years (it is only four hours from my house). From my perspective, the diamondback was as hard to find then as now, only I am older and creakier and less amenable to fruitless snake-hunts than in the days of my youth. The aging herpetologist syndrome. Snakes are where and when you find them: that's just about all that can be said. Whatever "happened" to the diamondback rattlesnake in Okeetee (if something did happen) must have happened well before my time—and before the time of the "roaring pet trade" as well. And yet had it existed, I might have taken the easy way out like Bartlett and a hundred other writers and blamed pet hobbyists for my wasted efforts and fat stomach.

Heyward Clamp, Jr., Director of the Edisto Island Serpentarium, has probably seen more South Carolina diamondbacks than any man living. For over 40 years he's been surveying diamondback populations, and if I may say so, I have not talked to any person who has a more informed view on the conservation aspects of these snakes. He designed the first artificial hibernacula for diamondbacks to replace stump-hole loss, and began seeking ways to repopulate diamondbacks back in an age when most scientists weren't even aware of a problem. While protection advocates pay only lip service to diamondbacks, Clamp actually does something to try to help them.

Clamp believes diamondback populations tend toward a natural rise and fall (pers. com. and Clamp, 1994). He credits their rise in South Carolina (in the 1950s) to an incidence of hurricanes in years previous, which created stump holes (winter refugia) out of felled trees; limited logging (but not clear-cutting) with burning of the intact stump (whose interior has to rot out to permit the snake passage to get inside); and quail farming on reserves (grain is put out to feed the birds, which increases rodent populations). Gopher tortoise burrows are not much available to diamondbacks in this region; indeed, there are very few of the tortoises in South Carolina, which lies at the northernmost extremity of their range.

Clamp reports:

> If the diamondback rattlesnake has been affected by overcollection in Okeetee, then diamondback populations should be higher today than 30 years ago, since herp hunters have not been allowed there since 1970. But they are not higher. They are lower. They are lower because of a change in habitat.
>
> There have been no hurricanes to strike Okeetee since Gracie in 1959 (Hugo hit north). As a result, there are less felled trees, less stump holes for hibernacula. Logging has not been done in Okeetee for about 40 years. Most of the old stump holes have disappeared completely in this interval. Another factor was the deliberate removal of the stumps, which were harvested for an ingredient used in making explosives. If you look at the distribution range of the diamondback on the east coast, it follows the hurricane path into southeastern North Carolina. Without the gopher tortoise, the diamondback depends on these stump holes to pass the winter. But there are not many gopher tortoises in southeastern South Carolina because we are at the extreme north of their range. The decline in diamondbacks in Okeetee has nothing to do with human persecution. People have always hated diamondbacks and have always killed them. The decline in diamondbacks has everything to do with the availability of hibernacula. Diamondback populations in South Carolina (unlike Florida and Georgia) are dependent entirely on the availability of underground refugia, and hurricanes are the means of providing that. I am certain that what Carl Kauffeld reported in what has come to be known as the "rattlesnake heyday" (mid 1950s) was an abnormally large population of snakes resulting from high hurricane activity in the 1940s, coupled with intensive quail management in Okeetee that had literally turned the game preserve into a diamondback farm! In putting out grain to raise quail, the managers of Okeetee were accidentally also farming rodents, and thus, rattlesnakes!

The distribution of diamondbacks in the two states north of Georgia can then be described as an opportunistic distribution dependent on available refugia, and these refugia are created by heavy storm activity (i.e., hurricanes). Clamp goes on to remark that these contingencies have had little effect on canebrake rattlesnake populations, which can make more opportunistic use of refugia. Being smaller, less robust snakes with noticeably smaller heads, they are able to infiltrate smaller holes, just as are many colubrids. Clamp says he is seeing the same numbers of *C. horridus* today as 40 years ago.

I asked him what he thought about the effects of pine logging on diamondbacks. "Good, if the stump is cut off and allowed to remain in the ground. The diamondback does well in open canopy pine forest. But in closed canopy, such as in pine farming, they are wiped out. Pine farming and clear-cutting remove the pine stumps, with obvious results. Probably the single greatest threat to diamondback survival is passing the winter's cold. How man farms timber is by far and away the most important factor relevant to diamondback survival in South Carolina."

I told Clamp how after the last hurricane "epidemic" in North Carolina the timber companies were rushing in to clear-cut wherever large numbers of trees were felled, and hauling off the stumps and or burning them on site. "Then you will not have diamondbacks in North Carolina," he replied.

It seems the "stump-hole rattler" (local vernacular for diamondback) has simply disappeared along with its stumps!

"What about persecution?" I asked him. "Can this be affecting diamondback populations too?"

"Around human dwellings, yes. But once you get back into the woods persecution has a minimal effect. For example, in 1966 I was hired to remove nuisance diamondbacks from a 1000-acre plantation. Since I could not succeed the first year I went back the next. And 35 years later I am still going back. For all my efforts I am still harvesting about the same number of diamondbacks that I was in the 1960s—about 10–20 examples per year. You have to realize that diamondback collection is strictly seasonal. You have only about a three to four week window in which to find them, ending in about the third week of April. After that, the vegetation becomes so dense that the snakes (or their holes) cannot be found. One can only catch a very small proportion of the snakes, since for every one you find, there may be a half-dozen more underground."

"What can I do to help diamondbacks in my state?"

"You need to talk to the forestry department, not the game

department. The game department can do nothing for them. Unless, however, the game department can exert pressures on the forestry department. . . ."

And I reported to him that because diamondbacks are not considered "game" in North Carolina, there is nothing the game department can do for them at the forestry department, so useless is it to protect a "nongame" animal. But if one could get rid of the semantical obstruction of "nongame," and reclassify all herptiles as "game," then it might be possible to take direct action to improve the game *resource*.

I might mention here that the pathological approach to scientific investigation has evidently been adopted as the creed of the South Carolina Department of Resources as well. They have persistently opposed Clamp's edifying suggestions on repopulating diamondbacks, and ignored his views on what is happening to them. This is not because his contentions lack merit (obviously they provide the only workable solution), but on account of his limited connection to commercial trade at the Serpentarium disqualifying him as a reputable source. The pariah syndrome: he is *The Enemy*, with whom the "clean hands" of hypocritical government are forbidden to consort. Forbidden by whom? By a tacit consensus, by the very invasive PETA, by backward and self-deluded herpetologists sleeping in state offices, who have not even a fraction of the field experience Clamp does. Here again it is the mouth speaking, not the words spoken, that government is listening to, *simply because they don't have any discerning knowledge themselves*. As is North Carolina, South Carolina is under considerable pressure from USFWS. As though from secret societies convening in camera, the totalitarian edict is handed down, vended at the price of continued funding, and bringing us insoluble conflicts and quack cures, which they drag out from year to year in order to make certain that there is always a comfortable desk for them to sit at somewhere, if not in this state then the next. The attitude of South Carolina toward Heyward Clamp is tantamount to ignoring the needs of the fishing industry in order to govern fishing; of ignoring the *factual* input of those who have actual contact with wildlife, in favor of the mere *opinions* of desk chair operators who may never have actually seen the live animal in the field, and can only vaguely guess what is going on in a foggy exterior world in which they may have only set foot for show in a newspaper clipping.

There may be men of Heyward Clamp's caliber in every state, their wiser but quieter voices shouted over by the louder mouths of federal poseurs working on state salary and with none of the experience. Only rarely does there appear a Don Young, Chairman of the Congressional Resources Committee, willing and able to take a hard look at these illogical people and smoke them out from their smokeless offices where they dissemble behind their fabrications and nondata. And among scientists, it is the rare Joan Berish or Kevin Enge who actually gets out and finds out what is going on, and reports it.

While I did not, 25 years ago, find diamondbacks in the Okeetee area, I did, oddly enough, find them further south in coastal Georgia *within the range of the commercially exploitive rattlesnake round-ups*. What does this suggest? That the rattlesnake round-ups are less damaging to populations of these snakes than "whatever" has affected them in the Okeetee? I haven't the least idea. However, if I employ pathological science I can make a number of connections that will *sound* like facts to a naive public. I can stammer out that the insidious pet trade is not at work in northern Georgia but is yet going strong in the Okeetee due to its greater reputation (conveniently ignoring the fact that herp collectors can't set foot there). Or I can grasp at less unreasonable, but still unsubstantiated straws, claiming that the human battle against snakes in North America, after more than 200 years, has at long last been won in an obscure South Carolina backwater. In any event, no matter what my statement my science will have become pathological because it will be a *fabrication*. Note, however, that any and all of my fabrications would be perfectly acceptable in a tabloid literature that does not require anything more than an author's *opinions* (or another author's opinions cited) to back them up. To a USFWS prepared to act on these fabrications because it is to their bureaucratic advantage to do so, my remarks would be welcomed like dear old friends.

The UFO phenomenon; the JFK murder conspiracy (and a dozen other conspiracies like it); the extraordinary "polywater," a wonderful new kind of water which was supposed to be of great benefit to mankind and yet which one camp of scientists feared might contaminate "normal" water and destroy the world; Sagan's "nuclear winter"; and now the "Alvarez Hypothesis" (that the dinosaurs were made extinct by because an extraterrestrial bolide struck the earth and blighted the atmosphere). . . . This is the landscape in which we breed our fears of the insidious pet industry, which like the communists of 50 years ago, is everywhere around us and yet nowhere to be found. There is nothing wrong with treating such fancies as good speculative fiction (scenarios that might in some parallel universe have occurred), but with no physical evidence whatever to back them up, and a great deal more evidence against them, we have to admit that as factual commentary there is very little good in having them around. In the case of the Alvarez Hypothesis, a popular poll shows that the majority of the public actually believe the tale of the gigantic asteroid collision having caused the mass extinction. *They also believe that the scientists believe it as well*! (After all, it is scientific "fact" that they *imagine* they are echoing). This is a phenomenon to which the media has contributed in no small way. The depiction of the gigantic asteroid plowing into the Earth (shown with the latest special-effects graphics) and fomenting such a cloud of dust as to abolish Earth's most spectacular living creatures is so impressive as to be unforgettable. Seeing is believing, and we've seen it on TV. And yet a poll among scientists shows that the greater majority (70%) *do not* believe in the Alvarez Hypothesis, do not support it, can find no evidence for it, and indeed, have assembled a great deal more evidence against it (Officer and Page, 1996). Indeed, paleontology had quite adequate explanations for dinosaur extinction well before Luis Alvarez ever found the implicating iridium on which he based (falsely) his idea. But these explanations are less spectacular subjects for special effects television, besides being a good deal more difficult to grasp.

And less spectacular to the news media than "snake-smugglers" (and to a USFWS bent on promoting its own insecure position) is the fact of a species of snake disappearing en masse simply because its stump-holes are disappearing en masse.

And so a "Scientific Council," panicking before the voices of "decline," add their own Chicken Little opinion into the brew ("Look out for the asteroids!"), conscientiously building totems from myths, facts out of private obsessions, and pitching in with the same "end of the millennium" hysteria that characterizes a belief in alien abduction. Without giving any study to the matter themselves, but *feeling* that they are echoing accepted scientific fact, Mr. Scientific Council Member climbs on the bandwagon behind a zealous crusader who *seems* to know his business . . . then he just relaxes his mind and goes along for the ride. And why not, it's a safe bet it's true; *everybody says so*. "But how do you *know*," you ask them innocently. "Because studies say so," they reply. "*Which* studies?" you ask them. "Oh my dear boy," they reply, "don't waste my time."

All this would be merely harmless idiocy if it were not such contagious idiocy; if it did not so drain our efforts to save this world of ours, and drain our money to do it with. Succumbing to the age-old foibles that characterize all manias, from the Crusades to the Mississippi Bubble, the worst is yet to come for the "Scientific Council." For Langmuir notes one other inevitability of the pathological approach: the sixth symptom, that the ratio of supporters to critics rises to somewhere near 50 percent and then falls gradually away to oblivion. Supporters of the "Scientific Council" are already falling away. This paper is a symptom of it. For happily, the very processes of sciences have so far tended to overcome these human shortcomings over time. We do make progress.

And yet ad hoc "Scientific Councils" do a considerable amount of damage while they live. In attributing the greatest effect to the *least* cause, they divert our energies away from the real problems facing wildlife, giving us the luxurious feeling that *something* is being done, our best brains at work, even if those brains are only busy stewing their own private alchemies. But they will not turn lead into gold for all their efforts. And wildlife will continue to decline in spite of them.

More roads, more cars, more people! Onward the new Utopia!

So why is the big eastern diamondback disappearing in the South Carolina lowlands? Ask Champion International and friends. In their unprecedented onslaught on trees, big lowland snakes which depend on large hibernacula within the root systems of large trees have less and less places to go in winter, and probably freeze to death. Pine monocultures proliferate, and before the trees are even seven inches in diameter, down again they come, providing sustenance for nothing while they live, and not even wood-humus after they are felled, their stumps and root systems removed by bulldozers and burned in great stacks. Not even the termites escape this American dream. North Carolina wildlife is being extirpated en masse, for there is a bounty out on planet Earth itself, with who can destroy the most getting the biggest payoff.

Meanwhile, the road systems expand to keep up with an ever-growing human population. Roads bringing more cars, more suburbs, more strip malls, golf courses, and more and more roads to get in and out of this circus. The pine desert expands with it, for people need paper to wipe up after themselves. Putting a limit on roads, or the numbers of roads, is apparently unthinkable: the American dream is, after all, the dream of easy transportation. If 97,000 linear miles of state maintained roads exist in North Carolina today—enough tar to spread around the world four times!—we can expect this amount to double over the next decades, and increase exponentially after that. For roads breed roads, needing always more roads to get to those roads.

Here is the great dream of our former Department of Transportation (DOT) chief, Garland Garrett (since dismissed for corruption): "My goal in office is that no person in North Carolina shall have to live more than 10 miles from a four-lane highway!"

His dream lives on, with or without him, for it is DOT's dream too. Men and women whose goal is to "improve" our world. So long as there is profit to be made from increase (providing more jobs, more justifications for jobs) so Henry Ford's nightmare will increase also. Property owners want roads, the more the better. Roads to connect to, and subdivide, their real estate, so that they can sell high what they bought low. Property without a road to get there is worthless. The goal of the DOT is to make driving *everywhere* possible for *everyone*. Garland Garrett was dismissed from office for too blatantly doing just that—he was (so the newspapers tell us) *conspiring* with landowners to show favor as to where he *put* roads. I say "too blatantly," for he was dismissed not for actually building the roads (which everyone applauded), but for showing *favoritism* about which landowners got them built. In short, he was dismissed for *not building enough roads to satisfy everybody*.

Onward the automobile! In a land endlessly transected until even 10 miles won't be close enough to get to a freeway, a creeping snake hasn't got a ghost of a chance. And if 50,000 human deaths a year can't change people's minds about roads, how can the death of a few billion reptile pests? The "Scientific Council" members, in their avoidance of truth to satisfy their own prejudices that they might *feel good* about having done something *good*, play into the hands of the ignorant notions they sponsor, and unwittingly egg the nightmare on. In the midst of it all, our law enforcement has found the appropriate venue for their talents: chasing children who keep pet snakes!

In North Carolina, where the diamondback is truthfully more of a nostalgic memory than an "endangered" species, the forces of human expansion have been hard at work for decades. Hardly did the last hurricane get through with us when the timber people were right behind it cleaning up the mess of our woods to make them look once more like the cultivated farms they are. As roads, clear-cutting and development expand, so the ESA must expand to keep up with the problem. Today

there are 200 "protected" species, in 10 years there will be 400. . . . Future "Scientific Councils" will see to it. Multiplying as we humans multiply, soon *all* species will be protected—which is tantamount to saying that none will. And none are now, save the conspicuous alligator, who bobs up now and then like a mascot for the success of an ESA which did, once upon a time, work for a few big and easily recognizable species (when the list wasn't so long you didn't need a lawyer to interpret it for you, and a calculator to keep up with the names). But if Mr. Gator didn't live in the water, which no man owns (and which he could duck down under), he would have long since gone the way of the eastern puma, who had no comparable escape route.

Like the purveyors of roads, the bureaucratic goal of the ESA is to expand, in turn expanding the satellite enforcement agencies (such as the NCWRC) that depend on such endangerment to justify their jobs. The more endangered species, the more jobs. The more jobs, the greater the room for advancement. It is a vicious cycle, one hand feeding the other its carrion. "Scientific Councils" like this one encourage this farce, dancing with the devil while the world burns. They propose a law amendment, "protect rattlesnakes!" Everybody goes away happy that something positive has been done. But the fact remains, you can only "protect" so many animals until the meaning of the word becomes so undermined that it ceases having any value. It has reached that stage now.

Protection advocates argue that laws like these will help them acquire habitat to save the animals. "We have to declare formally that the animals are endangered before people will listen to us." Ideally, this is perhaps their one saving grace.

And yet, with nearly 200 names already on their great list, you would think they had enough justification already. When is this divine era of land acquisition going to begin? Answer: when Utopia comes. Why not just acknowledge now what everybody knows already, and doesn't need the "Scientific Council" to tell them: that *everything is endangered* and will only get more endangered as the musical chair ride of endangered species (from "Special Concern" to "Threatened" to state-listed "Endangered" to federal-listed "Endangered") reveals itself to be nothing more than a downhill slide toward the inevitable mass extinction of all living things?

And many people are sick of the ESA. I quote from the *Washington Daily News*, January 2, 2000:

> Overzealous law enforcement has resulted in landowners fighting back. . . . Landowners are killing every red cockaded woodpecker on sight, or any woodpecker that even resembles one, if they see it on their property. If they see a suspected nest tree for the bird they will cut it down and burn it quickly before the authorities find out that they have these birds on their land. Why shoot the birds? Because if wildlife authorities find out that you have a population (even a suspected population) of these birds on your land, you can kiss your right to control your land goodbye. You may pay taxes on it and you may have a piece of paper saying that you "own" it but the government has complete control of it. In other words, if you are even suspect for having an endangered species on your land, you can no longer do what you want with it.

If the ESA worked there should be less species on its list from year to year. The fact that there are always more, and more of them being upgraded, only shows that, like every bureaucracy, wildlife protection is self-fulfilling and self-generating. Like the 300 billion dollar a year drug war (an amount far greater than the GNPs of the nations that supply the drugs) it *depends* on the problem for its own economically parasitic existence.

Wouldn't it make more sense to stop looking at this from a species standpoint, and start looking at it from a wilderness standpoint? To start drawing lines on maps (as Costa Rica has done) instead of on meaningless lists in space; to save hundreds of species in one whack now and forever rather than sitting back waiting to put a new name on a wall calendar for a few scientists to ponder pensively? To get *out* of the Police Business and get into the Park Business? To get rid of a system that does not work and get into one that does? And to take the money that supports the failed system and put it into land acquisition where it can have real value?

Every nickel given to the ESA is a nickel wasted. We need an *EHA* (an Endangered Habitat Act), not a cumbersome and useless *ESA*. We should be protecting biological *life zones,* and within these life zones humanity should be encouraged to interact, not shut out behind legal barriers so that these zones can have no useful reason for their existence.

Try suggesting this the U.S. Fish and Wildlife Service and the rest of their police factions and you'll just scare the hell of them. "But what will happen to *us*?" they whine. Have them report next day for duty as Park Guards. They can still keep their badges and guns.

Look at the bizarre laws the ESA foments. In attempts to make them "enforceable," law enforcement must stoop to euthanizing (killing) the very animals they would protect! Rather than let the "cruel hobbyist" have his pet alive they will *cruelly* take the poor animal from him and kill it—in the name conservation. The sacrifice of one for the good of all.

Captive reproduction of diamondback rattlesnakes (and others) is presently forbidden in North Carolina: by law the offspring cannot be released or sold within North Carolina, and must be euthanized. Due to previous Braswellian logic (and "ease of enforcement" written into the regulations), captive reproduction programs would have prevented state agents from determining if the keeper/collector had actual captive born animals, or wild caught ones. Therefore, possession had to be made criminal. A very interesting idea considering that, supporting Dave Davenport's challenge, nobody could even find a wild diamondback to collect!

With captive reproduction forbidden, reintroducing these snakes into the wild can never happen. Nor at this stage, even if it were possible, is it likely to. If the law were suddenly repealed, there simply isn't enough captive *native* stock to do it with. And with the "Endangered" status to come, acquiring founder's stock will move into the realm of the impossible. In South Carolina even the Riverbanks Zoo can't keep a native South Carolina alligator, but must import their live displays from out of state! Yet nuisance gators are executed in South Carolina as a matter of course. Now North Carolina wants to buy into this kind of logic with rattlesnakes.

Here's the real irony: a competent reptile breeder could, starting with as few as 10 unrelated pairs of diamondback rattlesnakes, produce well over 100 offspring per year for the next 10 years, totaling 1,000 individuals! These could be released in appropriate areas and Dave Davenport would no longer have any grounds for his challenge. Nor would the present law have any further purpose in North Carolina. A fact which would surely mortify the government agencies who depend on ESA to justify their funding. Now, thanks to the short-sightedness of Alvin Braswell and his "Scientific Council," when the last North Carolina eastern diamondback disappears, there will not be a single reproductive pair in captivity. The latter gentleman, who has already single-handedly killed more North Carolina reptiles and amphibians (and diamondbacks) *than any other single taker of these animals in the history to the state* (see further sections), would evidently rather look at these animals in pickling jars, which is where he puts the few nuisance examples that find their way into his hands. All of these last facts may seem odd to the reader who expects endangered species to be "protected," but I assure you that the "Scientific Council" and NCWRC, who would gladly put a child's father in jail for possessing a bag of live snakes, feels quite comfortable about deliberately killing those same animals themselves.

Like most Utopian concepts, the Protection Racket is doomed to fail. Because it is a totalitarian concept, dependent on a police system to make it workable, it is as fragile as Russian communism, which showed the world once and for all that *limitless bureaucratic expansion* must end in bankruptcy of the nation. Making people do as they are told is expensive. It costs more and more from year to year, for people will not do as they are told, and there are always more and more people and thus more and more things to tell them not to do. In order to make them do as they are told, at least cost to the state, the burden of proof must be placed upon the citizenry. In short, it's the old "ends justify the means" con that haunts the dictums of all fascist and totalitarian philosophies. You can always tell a totalitarian dogma by this one telling sign: It is up to you to prove your innocence.

"Catching snakes is not a right, it's a privilege," the wildlife cop intones as he leads you away to a fitting cell among the murderers and thieves. "What you've done is the same as stealing! You're stealing from all of us!"

One could burst into peals of insane laughter if the goon who is telling you this didn't have a gun at his side to back up his mania. In the minds of the "Scientific Council," all creatures once "protected" by the state, belong to the state. The public has no longer any right of access to them. "But we are preserving the animals *for* the public," our state-paid wardens blather. We ask: Which public? Where? When? Their faces go blank a moment and, their jaws moving like ventriloquist puppets, they mutter something about "just doing our jobs, man."

The Obscure Issue of "Pet Suitability"

Human interaction with reptiles and amphibians is not the only right the "Scientific Council" seeks to take away from North Carolinians. Here we have also a *moral code* which they have determined North Carolinians must live by, one called "pet suitability." This curious concept (for a group of "scientists"), which echoes Emily Post or Miss Manners, is coined solely within this proposal evidently, for we can find it nowhere in the scientific literature. It seems derived from the hobbyist literature, ironically—the very hobby the "Scientific Council" argues their contempt for. Be that as it may, we question its placement in a supposedly "scientific" document.

"Pet suitability," one of the Council's previously rejected (1998) amendment proposals tells us, is the ability for a given herptile to make someone a "good pet." Since herptiles cannot even be considered "pets," but at best "captives," and are more related to livestock or even aquarium fish, the term is misleading. The beginner collector of herptiles may purchase some of his stock from "pet shops" (except for venomous ones), but in essence he keeps a terrarium animal and not a valid and responsive "pet." To help supply this trade and enthusiasm, or to provide herptile products (such as venom, skins), the hobbyist may advance to the professional market and breed these animals as livestock and sell the progeny. North Carolina statutes guarantee the right of livestock ownership for any usage, commercial or otherwise. This is an issue of which the Council seems completely unaware.

The Council acknowledges no connection to the pet trade and does not run pet shops or deal in "pet" animals. They have not written any literature on the keeping of pet animals and are not known within the hobbyist literature for their advances in the maintaining of live herptiles in captivity. They have no verifiable basis for their statements except that they, presumably, have once upon a time kept some pet herptiles—and from this have decided to disapprove of it for others. While the North Carolina Museum of Natural Sciences keeps several small displays of North Carolina herptiles for educational purposes, and maintains some exhibits, their collection is no more noteworthy than that of many amateur hobbyists across the state—nor does it require any higher level of expertise to maintain.

A recommendation for "pet suitability"—and basing an entire report on such a cloudy issue—is indeed an odd statement for any Council of scientists to make. Yet the "Scientific Council" did just that in 1998, entering into a fray more worthy of PETA than biologists. An issue of "pet suitability" is all the more unscientific when applied to rattlesnakes, which cannot be considered "pets" in any sense of the word. The obviously valid reasons for herpetoculturists keeping and propagating these and other snakes have been completely overlooked in their report.

While we appreciate the Council sharing their ideas on what makes one pet more "suitable" than another, this is hardly the stuff of good biology, and forcing those ideas upon the public under penalty of law seems a little extreme, if there is no good reason for it. The Council should take care to note that there are over a dozen trade magazines available on what herptile pets are easiest to maintain in captivity, and North Carolinians do not require an unwieldy law restricting their rights in order to help them determine what they can, will, or

want to keep. Also, in this day and age, pet shops and other dealers, who obtain their live stock typically from private breeders, are well informed as to what items have "pet appeal" and do not trouble themselves to buy those that don't (for they themselves must maintain the perishable item until it is sold, a process that can takes weeks or months before the pet finds an owner). We know of no reptile dealer selling venomous snakes to underage or unqualified people; and although certainly such a potential exists, and will exist, as long as there are unethical people in the world, such will not be controlled by an unenforceable law like this one). Dealers want repeat customers, as does any business, but they do not want lawsuits against them for selling dangerous animals that can harm their customers. This is simply good professional judgement and the state of North Carolina should not be required to regulate common sense.

As shown, our investigations into the commercial "herp trade" in North Carolina reveal it to be rather low impact given the overall stresses to herptiles, and from most standpoints beneficial. What population stress does the Council imagine it is controlling, that it is willing to drag a person into a courtroom and prosecute him for:

1) Possessing a snake in order to remove it from his property where it might cause harm to human life;
2) Rescuing the snake from a highway where it might be harmed;
3) Reproducing such snakes in captivity as a farmable product.

Statistically harmless to herptile populations as a whole, the herp terrarium is both the *safest* and most *convenient* means of public interaction with these forms of wildlife, and the one that causes wildlife the least of all environmental pressure. The North Carolina Museum of Sciences itself makes use of this educational tool. Equally, public interaction with herptiles helps allay fear of herptiles, with persecution of herptiles, especially snakes, much reduced from years past. In short, "it builds awareness."

We should note that these beneficial effects are thanks not to the effects of law enforcement, but to the positive influence of education. And, as we have shown, modern use of herpetoculture to captive propagate wildlife *effectively reduces wild collection in direct proportion to number of animals captive propagated*. Wild collected herptiles, being always more difficult to acclimate to captivity, will always be in less demand by hobbyists. The Council's proposal does not acknowledge this beneficial role of herpetoculture, and obstructs the herpetocultural agenda. Laws to prevent herpetoculture would increase commercial reliance on wild populations to a degree greater than any that has yet been seen.

By far the most effective tool in protecting wild herptiles from exploitation is to encourage captive propagation of herptiles and give captive propagators all the latitude they need to do their work well. We look forward to a day when captive propagation will *effectively end most reliance by human beings on wild caught stock* by providing a cheap and affordable product identical to that taken from the wild, but produced in captivity. Increased captive supply = reduced demand for wild collected herptiles, and deflates economic incentive to wild-collect. However, the Council's 1998 proposal was exactly the reverse "strategy." If implemented, it would have destroyed captive propagation of herptiles in North Carolina, and thus increased demand for a wild-collected substitute. The "problem" would not have been solved, it would have been compounded. And it would have generated a new problem that does not now exist in North Carolina, creating an "underground market" in herptiles where none exists presently.

On the naiveté of the "Scientific Council" as regards commercial trade

In 1998 the "Scientific Council" made a failed attempt to shut down trade in 148 species/subspecies of North Carolina native herptiles (all but eight native species in the state). It may seem striking and bizarre that a group of scientists would ally themselves to such a cause, but their 1998 "Report by the Amphibian and Reptile Scientific Council on Commercial Trade" made their intent plain. This intent is ongoing, and the new law protecting venomous snakes is merely a highly abbreviated extension of it.

In that proposal, the Council revealed not only an embarrassing naiveté about the functional aspects of commercial trade, its potentials, and overall effects, but repeatedly gave evidence of not knowing what even constituted a valid pet trade item. This was nowhere better expressed than by the "Scientific Council's" own recommendations for "no trade" items; over 100 of which have never been significant commercial trade items in North Carolina or anywhere else. One can only wonder where the Council derived its ideas, which had no realistic basis.

Let's look at some examples. In one of their typically bizarre assessments, we learned that common native toads (*Bufo americanus*, *B. terrestrialis*, *B. fowleri*) were being endangered by overcollection. They warned us how "populations [of toads] are easily exploited at the breeding site," leaving us to wonder just who was exploiting our toads. It was very esoteric knowledge indeed, for in our attempts to investigate this matter, no reptile dealer or pet shop we could find, inside or outside of North Carolina, would agree to purchase toads from us or even accept them for free! No, they emphatically did not want our toads at any price! What then was the incentive to "exploit" toads?

In a passage designed to strike fear into the hearts of parents of children who might play with toads, they warned us that: "The toxic skin glands contain bufotoxin and contact with eyes and other sensitive tissues can cause serious irritation. . . . Handling by small children should be closely supervised. . . ."

We learned how "Excessive mortality [of the mountain chorus frog] would be expected in commercial operations." And couldn't help asking what commercial operations now exist in North Carolina involving these kinds of frogs. We asked the Council to tell us, and to show with facts and figures what numbers these alleged operations harvest. Three years have now passed and still they have not replied.

Strangest of all, we learned of the plight of the Dekay's snake at the hands of pet-o-philes: "The brown snake [Dekay's snake] is a small delicate species that would likely suffer excessive mortality in normal commercial operations."

What "*normal commercial operations*" are there for Dekay's snakes? A drab species the size of an earthworm, that has never been commercially collected or sold to any degree in the U.S. or elsewhere, and appears on no dealer's price lists, and for which no specific technology exists to collect them! Indeed, what financial incentive would lead anyone to want to do so?

We learned that *Hyla andersonii* was "very attractive and easily exploited . . . numbers suspected to be declining" and how "*Hyla versicolor* should not be collected commercially" because "a good collector could collect virtually all the males from a local population by zeroing in on their calls when breeding conditions are prime." We learned how commercial trade in *Ambystoma maculatum* was almost certain to occur because of the species high pet suitability . . . this species will be lost in some areas." They warned us of the lucrative business of "laundering" a dozen other species of salamanders through Tennessee and yet other species that could be laundered through North Carolina, and on and on to the tune of 148 species/subspecies on North Carolina native herptiles.

While a number of the salamanders had apparent use in the bait trade, the proposal recommended that most of the species be "banned" merely for their *potential* as a pet trade item, rather than from their having any demonstrated precedence as such. Apparently, our "Scientific" activist group simply thought *they might* make good pets (using their own criteria) and so they decided on that basis they shouldn't be sold.

After this flimsy "science," they deigned to allow North Carolinians access to the following few species they felt "appropriate" for us:

Species that can be captive propagated for commercial sale:

Salamanders:

none

Frogs:

***Rana catesbeiana* (Bullfrog)**

***Rana utricularia* (Southern leopard frog)**

Turtles:

***Trachemys scripta* (Yellowbelly slider)**

***Clemmys guttata* (Spotted turtle)**

Lizards:

None

Snakes:

***Elaphe guttata* (Corn snake)**

***Elaphe obsoleta* (Rat snake)**

***Lampropeltis calligaster rhombomaculata* (Mole kingsnake)**

***Lampropeltis g. getula* (Eastern kingsnake)**

This is the actual wording. Out of 156 species, the Council deemed you could breed eight! They noted further, however, that among snakes, no offspring could be sold once exceeding 15.2 inches.

With that incredible report, the "Scientific Council" made their objectives clear. They were not out to control or manage the use of these animals (merely recommending a "bag limit" could have achieved that). No, the "Scientific Council" was out to shut down *all trade* in all North Carolina native herptiles. And if they had to make even grammar school kids into criminals, then so be it.

Fortunately, the Council's ludicrous recommendation did not meet with state approval, and we do not today live in an Orwellian society where our children are going to be arrested every time they catch a frog or salamander. However, if they catch a hognose or a green snake or a pine snake or a. . . .

Sternly criticizing the proposal in 1998, I wrote to each of the "Scientific Council" members asking if they were not also intending to reclassify the entire state population of young people into juvenile delinquents as well! They'd need not only bigger death camps for the reptiles, but more prisons for our kids! I also asked them to verify their recommendations with studies and numbers. Almost three years have passed and I have not received a single reply from any of the 11 members.

Let's look at what the "Scientific Council" does know about commercial trade. And how their Chairman Braswell and his State Museum are *among the greatest beneficiaries of trade in native herptiles that North Carolina has ever had.*

Exploitation of commercial trade at the North Carolina Museum of Natural Sciences

Alvin Braswell of the North Carolina Museum of Natural Sciences is the guiding hand in creating the new amendment proposal. And yet North Carolina Museum of Sciences has long enjoyed the benefits of, and supported commercial trade in herptiles since its inception. This is verifiable by the locality data on herptiles obtained by the Museum, a great deal of which can be linked to commercial trade. While the museum rarely purchases these animals, but receives them from donation, they have for many years obtained them from numerous sources who themselves have acquired them through commercial trade. The museum has patronized such individuals and businesses on a regular basis for over 30 years, and solicited their help (pers. com.; George Tregembo, Jerry Brewer, Tote-em-in Zoo, suppliers of the Museum of Natural Sciences since the 1960s). This can be physically demonstrated by the bodies of these animals that were donated alive to the museum, but later killed (in many cases unknown to the collectors) and preserved as scientific specimens. The catalogue entries that accompany the thousands of dead carcasses may be viewed by the public upon request, and will verify the origins.

The vast majority of these live animals were killed at the Museum by one of three methods: (1) put alive into formaldehyde; (2) injected alive into the heart cavity with formaldehyde; (3) put alive into a freezer. This is standard practice at the museum. It's no wonder Alvin doesn't shrink at turning NCWRC into a state-run death camp for reptiles. He's already running one!

We will not discuss the dubious merits of torturing and killing thousands upon thousands of live animals, many of

them "endangered," for the sake of an esoteric science. Instead we ask: If the North Carolina Museum of Sciences does not approve of commercial trade in *live* reptiles for others, then why approve of outright killing them? Moreover, if commercial trade should be "shut down," then why this 40-year petitioning of commercial traders for live specimens?

I quote from the acknowledgments section of Palmer and Braswell's *Reptiles of North Carolina:*

> It is a pleasure to thank George, June, Robert and Paul Tregembo for numerous favors over the past thirty years. From the Tregembos, we have learned much about the diverse and often abundant reptile fauna of the lower Coastal Plain; their assiduous fieldwork and generosity are largely responsible for the fine collection of specimens from southeastern North Carolina in the State Museum of Natural Sciences.

We should note that this "fine collection of specimens" was obtained through the use of commercial trade: the Tregembos operate southeastern North Carolina's largest zoo, the Tote-em-in Zoo. They are also dealers in live reptiles, as a sideline to exhibition. The reptiles in question were collected from the wild by the use of the "bounty system," where the general public received pay for collecting them and bringing them to the zoo. Confirming the Berish factor described previously, zoo co-owner Jerry Brewer notes that most of these reptiles were collected by the public as "nuisance animals . . . they would otherwise have been killed by the public had they not been offered a chance in captivity instead." Most were found by accident on roads or in people's yards, not from deliberately looking for them. Rather than kill them, the collectors would bring them to the zoo.

In return for their "numerous favors over the past 30 years," and for their "assiduous field work" from which "so much was learned," Alvin Braswell contrived in 1998 an amendment proposal which denigrated the kind Tregembos' collection methods, and would have effectively put them out of the reptile dealing business!

Commercial trade in herptiles has been going on in North Carolina in varying degrees for the past 100 years without creating any directly attributable decline of wild populations. The Tote-em-in Zoo at Wilmington has been purchasing live reptiles from the public since the 1950s, and this has resulted in no noticeable decline in herptile populations in New Hanover County and surrounding regions. (Development, on the other hand has had widespread and devastating effects in New Hanover County, to the extent that this region can rightly be considered an "ecological disaster area.")

My question is: If herptile collection causes herptile decline, why would the Museum of Natural Sciences have endorsed it—indeed, participated in it—for over 40 years? What is the reason for their abrupt about-face, after all this time? Is the cause scientific—or *political*? We can certainly perceive valid political motives. However, we can say factually, based on the catalogue entries accompanying the over 100,000 preserved carcasses at the museum, that the *North Carolina Museum of Natural Sciences is itself the single greatest consumer of wildlife in the history of the state of North Carolina!*

But who is *the greatest taker* of Special Concern, Threatened, and Endangered species in North Carolina today? Is it a roadside zoo, a private collector, a reptile dealer or hobbyist? Is it the skin industry? Is it a smuggler to foreign countries?

Think again. It's the Chairman of the "Scientific Council," Alvin Braswell!

Let's pay a visit to the North Carolina Nongame office, where Alvin's permits to collect these animals are on file.

In a renewable 1995 permit issued by North Carolina Nongame Office, Braswell is given carte blanche in North Carolina to collect all "Special Concern" and "Threatened" species he can carry. Indeed, the names are all there: the very species this paper pertains to: *pigmy rattlesnake, diamondback rattlesnake, coral snake*, and more besides. . . .

The wording on the permit is deceptive. The recipient (Braswell) is allowed to collect *only two* individual specimens of each species. Well, now, that's not so bad! Only two! But look closer—you will note that he is allowed to collect those two specimens *from any one location.* And since "location" is not defined or delimited, it actually means is that he can collect two from here and two from there and two from just about anywhere he damn well pleases, ad infinitum.

Power corrupting, and absolute power corrupting absolutely, no wonder Alvin Braswell constructs his proposals as he does. Where you or I would be sent to face criminal charges for having even one of these animals, he can fill a truck with them.

But it's not enough for him to do it himself. Braswell uses his friends to look after him. In a permit issued to David Jones, director of the North Carolina Zoological Park, no less than *10 persons* as well as Jones are authorized to collect *five specimens* of each state-listed "Threatened" and "Special Concern" species. The names of these 10 persons are: John Groves, Lorraine Meller, David LaPlante, Laura Reynolds, Ron Morris, Stan Alford, Bobby Roberts. Scott Davis, Kenneth Reininger, and Debora Zombeck. Significantly, there is a proviso that the specimens *must be deposited in the North Carolina Museum of Natural Sciences.* This means quite simply that the animals must be sent to Alvin Braswell!

Now unless my arithmetic is off, 10 collectors of five species can produce 50 specimens of each "Threatened" and "Special Concern" species, adding up to *several hundred examples in all.* And all to be returned to Braswell's death camp—as if he didn't have enough of them already in jars and vats, after five decades of the museum collecting them.

I will not bother to elaborate on the permits issued to Braswell and his benefactors subsequently (since 1995). The CHS *Bulletin* does not have so many pages.

More permits to collect (and kill) North Carolina endangered species have been issued to Alvin Braswell via the museum than the *sum total of all other permits issued in North Carolina.* A law the rest of us must obey, Braswell ignores with impunity. Exploiting his special connections with the North Carolina Nongame Office, at whose behest he constructs his

law proposals (providing them a reason for their existence), Alvin writes himself a special immunity. Under the auspices of the museum, Alvin will be unaffected by the laws he spends his time dreaming up for the rest of us. While you and yours may go to jail, he simply walks two blocks and has lunch with his old friends.

No wonder Alvin Braswell likes these laws, and labors conscientiously to construct them. Given a monopoly on North Carolina reptiles and amphibians, at liberty to keep these animals alive or dead as he pleases, he has become the "ultimate collector"! For it can be just as prestigious for a museum curator to maintain a pile of up-to-date carcasses as it is for a collector of pythons to have the most obscure rarity. Whether for "science" or for "artistic beauty" the mania to possess remains the same. But there is more than the accolades earned by corpses, for Alvin has placed himself in the powerful and desirable position of *dictating* which persons in the state will be able to work with these animals in the future—further amplifying a position he has occupied for a number of years as advisor to his pals in NCWRC. And what better business to be in than State Herpetologist, when it comes time to *monitor* the "declining" populations you have spent years identifying and recommending for state protection lists? A life of endless field trips for yourself and underlings, away from the stagnant basements of the formalin-stinking picklings of all the thousands and thousands of dead animals you have immured there.

Don't worry, Alvin, USFWS and North Carolina Nongame will still *love* you. For you and men like you keep them in jobs patrolling our shores for that most dangerous environmental criminal of the New Age: the amateur reptile hobbyist!

A last look at the pathology

The "Scientific Council" and their cohorts in NCWRC have decided that we shall remember them, if not for saving wildlife, then at least for their farcical sense of humor. Let's review what we have learned so far:

(1) That there is a decline in snake populations even though no one knows how many snakes there are, or ought to be; (2) that snakes that are so secretive that no one can find them can be determined to be in decline (e.g., southern hognose); (3) that the state with the highest incidence of snakebite in the nation does not have enough rattlesnakes to bite people; (4) that it should be illegal to kill a dangerous snake but legal to kill a harmless one; (5) that snakes that were so rare 50 years ago that only a handful of people had ever seen one have suddenly become "Endangered," and moreover, this happened after they were granted "Special Concern" protection; (6) that a child who catches a common species of snake or other reptile in his own yard is a criminal, while cars will squash thousands of those same snakes at night while he sleeps, totaling millions each year; (7) that in order to protect snakes and other reptiles you must make it illegal to rescue them from roads before being run over by cars; (8) that an animal so small that it can hide beneath a single oak leaf can be rendered extinct by flabby overweight snake-men toting bags and hooks while walking on weekends in thousands of square miles of dense forest, thickets and swamps; (9) that the greatest opponent of these supernaturally gifted snake hunters is also the greatest collector of snakes in the state (A. Braswell); (10) that you can increase wild populations of snakes by banning captive reproduction of them; (11) that a law that cannot be enforced and will not be obeyed will protect snakes few people can properly identify; (12) that a list of endangered animals increasing from year to year indicates a successful management approach; (13) that the greatest exploiter of herptiles in the state created the laws and will be least affected by them (A. Braswell); (14) that animals preserved as a resource for everyone can be used by no one (exception A. Braswell); (15) that in order to protect animals the state must kill them.

Recommendations

(1) Abolish the North Carolina "nongame" status in North Carolina and reclassify all herptiles as "game." All herptiles have historical usage and therefore precedence as "game." And snake hunting is a valid sport.

(2) Allow the public to collect the herptile as a live or dead product. All persons qualify regardless of institutional connections. This will put institutional personnel on an equal footing with the public and prevent irresponsible exclusionary law-making (e.g., such as that done by the "Scientific Council").

(3) Manage the collection of herptiles by quota, exactly like other game animals. Thus their use can be regulated, and need not be banned. The collector purchases a stamp for each example he or she wants to take. The fee will be geared to reflect 50% of the wholesale resale value of the animal (25% of retail), which will vary according to current market price. This will remove profit from wild collection and discourage it, and force a reliance on a captive born product. The resulting monies (which should be considerable) should be managed in a way that will help herptile populations (e.g., acquire habitat, sponsor breeding programs to re-introduce depleted populations of some species).

(4) Ban certain forestry practices that hurt herptile "game" habitat, such as uprooting and removal of stumps (management of herptiles as game animals will enable the state to dictate land usage to some extent, as is already being done for other game species).

(5) Do not permit gassing of snake dens.

(6) Establish a licensing system for captive breeders of herptiles. Applicants will purchase a breeder's license and be exempt from any other fees, except those originating with the collection of the original founder's stock or any further stock taken from the wild. There are no additional licenses required to export offspring or wild collected adults from North Carolina, provided the original quota fee is met.

(7) All species, including ESA species, will be permitted to be reproduced in captivity. The applicant will pay the state the full current retail price for each example of ESA species collected. The offspring of ESA species will be PITT tagged (so as to make enforcement for wildlife agencies practical) and logged with the NCWRC office. No further fees will be

exacted for offspring, which will encourage captive reproduction (discouraging wild collection). There are no limitations on destinations of sale (they may be sold within state or without). If an ESA species is sold within the state, a copy of the permits and PITT tag number will accompany the specimen. Free trade in captive born ESA species will encourage captive reproduction of them, and attempts to rebuild wild populations in some seriously depleted localities will be encouraged by the State.

(8) Exempt children under 16 from collection fees (unless ESA species) so long as the specimens are not resold. Do not exempt them from the quota, however.

(9) An ESA without habitat is worthless; but habitat without the ESA is tenable. State and federal government should therefore work toward abolishing the ESA and replacing it with an EHA (Endangered Habitat Act) or similar program intended to conserve the *biological life zones of herptiles and all other wildlife simultaneously*. An effort should be made to de-emphasize protection of individual species so far as possible, so long as this can be construed not to do *significant* damage to wild populations. An attempt to determine population numbers and expectations should be made by the state, monitoring the effects of harvest according to locality. This can be accomplished by licensees reporting their collection findings.

Future of a state and federally controlled "Scientific Council"

I do not see any future for a "Scientific Council" that does not use science, nor for a group of scientists employed by state and federal government who act out the roles of independent scientists while preserving clear and admitted biases. I believe that it is time for the "Scientific Council" to step down from attempting to influence state lawmakers. They have proven themselves ill-equipped for the task, and by their own admission reveal an unwillingness to abide by laws imposed upon the general public. We ask that an independent investigation (or ad hoc committee incorporating a broader public input) not related to the "Scientific Council" or its membership explore these matters further. We ask that any scientific material intended to influence the lives and health of North Carolinians be *published* in a recognized journal of peers and then reviewed by the whole scientific *and* medical community (e.g., public health), not a closed society, before being presented clandestinely to lawmakers. We ask that the Scientific Council cease presenting inaccurate or unconfirmed opinion designed to look like fact to our state agencies, and use the standard scientific protocol that is appropriate to all good science.

We recognize snakebite as a public health issue. We ask that the NCWRC also recognize this, and if intending to pursue this course, to place it first for review by the appropriate health agencies. We ask this as a formal request.

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HerPET-POURRI

by Ellin Beltz

And your little iguana, too!

A 50-ish resident of Carlisle, Arkansas, is a very lucky fellow after a tornado picked up his house, with him in it and then tossed the house down. Two other houses and two mobile homes were totally destroyed, other businesses and buildings in Carlisle were damaged. All the pets but one cat were found, including Izzie, a 3½-foot "cold and irritated" lizard. [*Arkansas Democrat-Gazette*, February 15, 2000, from Bill Burnett]

Amphibians vanish while bureaucrats get paid

• The *Chicago Sun Times* reports that "the world's frogs, toads and other amphibians are vanishing, and the decline began decades before scientists first sounded the alarm in the 1980s, according to the biggest statistical study of the topic . . . [published in *Nature*]." Previous evidence had been mostly anecdotal, but by studying data collected by others, researchers found data on 936 populations from 37 countries. Read all about it on <http://www2.open.ac.uk/biology/froglog/froglog.html> FrogLog. [from Lori King]

• *Econews* [March 2000] reported about the possibility of endangered status for a Sierra Nevada frog. A petition was filed with the U.S. Fish and Wildlife Service (USFWS) in February to include the mountain yellow-legged frog (*Rana muscosa*) on the list. Herpetologists note that only about 10 percent of the historic distribution of the species still has animals present. In the Los Angeles Basin, the yellow-legged frog may be listed as an endangered species—the proposal will be considered by USFWS this year. Further downhill, a local northern California group filed a lawsuit against the USFWS charging the agency with several years of delay in helping preserve the southern torrent salamander (*Rhyacotriton variegatus*). Populations of this species are in dramatic decline due to habitat loss from logging and other activities which impact stream sides and stream beds, not to mention degrading water quality from siltation and other forms of pollution. [from Bradford Norman and *Los Angeles Times*, December 26, 1999, from Marcia Rybak]

Chicago-area frog and toad survey underway

Volunteers in several counties around Chicago are participating in a frog and toad survey over seen and guided by the Chicago Wilderness group. All reports of local frogs are important. If you have or have had frogs in your yard, please mark down this information. If you want to volunteer for the survey, visit the survey through my <http://www.neiu.edu/~ebeltz/anuran-links.html> frog and toad link page.

The more things change, the more they stay the same

• Surprise, surprise, the U.S. Environmental Protection Agency has just found out that excessive fertilizer run-off leads to growth of dangerous offshore algae. [Associated Press, March 8, 2000] The U.S. Army Corps of Engineers plans to toughen the wetland destruction permit process and now narrows that down to one-half-acre sites. The new regulations also will impact building in floodplains and in areas at risk of flooding. [*USA Today*, March 7, 2000]

• The Justice Department charged a 47-year-old Florida man with trafficking in rare and protected reptiles worth about $120,000. The man who has been dealing reptiles since 1992, pled guilty to the charges and admitted that he ran a fake breeding farm in Peru to cover up wild caught Amazonian animals. [*Daily Commercial*, Leesburg, FL, May 8, 2000, from Bill Burnett]

• A Detroit Pistons basketball player got his nickname after being thrown out of the team hotel because of his pet snake. Then he had to play. So he left the snake in his car, where it froze to death and now his teammates and the fans call him "Snake." [*USA Today*, March 1, 2000, from Bill Burnett]

Weblets

• In an article that appealed to both my geological and herpetological interests, *The Courier-Journal* [March 14, 2000] reports on the real reason that there are no snakes in Ireland. With data they obtained from the Internet <http://www.pbs.org/wgbh/aso/tryit/tectonics> "You Try It—Plate Tectonics" from PBS, the reporters discovered that due to the movement of the continents there never were any snakes in Ireland for St. Patrick (or anyone else) to chase out. [from E. A. Zorn] My Irish friends tell me that the story is a reference to the Catholic Church chasing away the Druids who had blue spirals tattooed around their wrists which the (mainland) priests saw as snakes.

• More information about the Yosemite National Park long-range plan can be obtained at <http://www.nps.gov/yose/planning> the National Park Service Yosemite planning page. [*Econews*, January-February 2000, from Bradford Norman]

• Read more about the brown tree snake invasion of Guam at <http://www.aphis.usda.gov/ws> and click on "Special Projects." [From a USDA pamphlet sent by Bill Burnett] All kidding aside, I keep waiting for USFWS to figure out that the most cost effective way to get rid of brown tree snakes (*Boiga irregularis*) on Guam is to just give the Sweetwater Jaycees free vacations on their island until all the snakes have been rounded up, beheaded, skinned, eaten, sold as souvenirs and freeze-dried. This year's Sweetwater Rattlesnake Round-up is on as usual. [*Abilene Reporter News*, March 13, 2000, from Bill Burnett]

Can we leak all over their CEO's house, too?

Animals emerging from hibernation in early February at the John Heinz National Wildlife Refuge found workers cleaning up more than 170,000 gallons of crude oil which leaked from an underground Sunoco Inc. pipeline. Workers took turtles and other animals to a rehabilitation center where the turtles were examined and blood samples sent for enzyme and liver function analysis. One red-eared slider was found to have died because it breathed oil into its lungs before the rescue efforts.

[*Philadelphia Inquirer*, February 28, 2000, from Ned Gilmore and the Allentown, PA, *Morning Call*, February 29, 2000] Contributor Ribello Bertoni wrote: "The NWR is in southeastern Pennsylvania, almost totally surrounded by urbanization. This spill is a shame. What we need . . . is a law that makes oil companies buy and preserve one acre of land for every gallon of oil they spill!"

Revenge of the SIM-guinea pig

The *New York Times* reported in their Friday section on new technology that the inventor of the popular SIM-City group of games included some rather real events in SIM-downloads that players used to enhance the environment of the SIM-families. Seems as though the SIM-guinea pig download had a Trojan horse variant in the coding which resulted in death of some SIM-family members. True to life, the SIMs only got sick if they didn't clean the SIM-guinea pig cage and then annoyed the SIM-guinea pig enough to get bitten. Then if that SIM didn't immediately take care of itself by sleeping and eating well after the bite, it would infect the other family members, sicken and die. Many SIM-game players were saddened by the loss of SIMs which they had spent hours developing and nurturing. [April 28, 2000] Hey, SIM-Creator! How about the night of the iguana next?

Go turtle ladies!

The National Wildlife Federation chose the Volusia sea turtle lawsuit as its top victory of 1999 beating out fierce competition, including bald eagle and other charismatic megafauna successes. The suit began 4½ years ago when two dynamic ladies undertook to provide a little charity for the turtles from their new beach-front neighbors. All the new buildings had tons of lights outside (remember in this "On Star" culture that we must banish the night)—and these lights were confusing baby turtles who use sky glow to help them find the ocean. Finally, judges ordered what polite conservation-minded individuals would have done in the first place: Use intelligent lighting so you can see—and not so much lighting as to kill endangered species. Last year, more than 60 cases of hatchlings being misled by lights were documented. I'm looking forward to seeing what is actually accomplished this year. [*Orlando Sentinel*, December 16, 1999, and January 9, 2000, both from Bill Burnett] Personally, I had a hard time believing some of the testimony against turning the lights off when they weren't needed. Can you imagine leaving lights on all night just in case somebody wants to go out the door at 3 A.M.? We have motion sensors that cost $9 at a major discount hardware store. They save us a ton of money on our electric bill. Why would the people in these condos (some of whom are only there one week a year) care if the lights were on 24/365? Have we forgotten conservation and respect for our neighbors while celebrating Earth Day every year? Look around—let's see what else we could do easily for wildlife.

More turtle news

• Dead turtles continue to wash up on Florida beaches. Volusia County alone recorded nine dead turtles in the last week of November, first week of December. Five were massive leatherback turtles. Based on the sizes and numbers, researchers say these are not accidental deaths, but that something is killing these giants in the prime of life. All sea turtle species are endangered. Florida Fish and Wildlife Conservation Commission officials plan to do air surveys of the migrating turtles and the fishing fleets. [*Orlando Sentinel*, December 2, 1999]

• Ninety-nine Kemp's Ridley sea turtles washed up on Cape Cod, Massachusetts, beaches last year. They were returned south as quickly as possible. [*Newsweek*, November 29, 1999]

• A Kemp's Ridley which swam to faraway Britain was returned to Orlando by air. Nicknamed "Beakey—the Wrong-way Turtle" by her finders in Wales, the turtle was flown by British Airways to Sea World in a blast of publicity on which the sun did not set. [*Orlando Sentinel*, December 11, 1999, and several others from Wes von Papineäu]

CITES side effects or tropical legend?

• "The African countries of Botswana and Malawi both are plagued with burgeoning populations of crocodiles that have been killing local residents at an alarming rate . . . [reports of] two people per day, but the number could be even higher because the incidents have become so common that they are going unreported. The reptiles have flourished since the signing of the International Convention on Endangered Species, which limits the culling of crocodiles and some other animals. The booming croc population has put a strain on the reptiles' available food supplies and sent them into populated areas." [*San Francisco Chronicle*, January 22, 2000, from Bradford Norman and Marty Marcus]

• "A young girl escaped from the jaws of an 8-foot crocodile when her little brother grabbed the beast's tail. . . ." The father then killed the crocodile with an ax. [*Albuquerque Journal*, February 8, 2000, from J. N. Stuart}

I used to like Chinese food

None of my Chinese friends seem to eat this stuff, but reports are still coming out of the west coast about the culture clash between local Chinese and local environmentalists concerning the sale of live food (including frogs, turtles and snakes) in local groceries. Efforts to negotiate a compromise have not been successful and the state authorities have failed to enact a law, stating that it is up to local communities to pass appropriate ordinances. Chinese point out that westerners boil living lobsters and dispute the lack of cruelty in American slaughterhouses, inviting environmentalists to watch chicken and beef slaughterhouse operations before decrying as "cruel" their killing methods. Environmentalists point out that turtles and bullfrogs are flayed and dismembered alive. In addition, the sale of live animals encourages Buddhist groups to buy them and release them into wild habitats where they do not belong and to which they may transmit disease. Watch for more on this issue in years to come. Meanwhile, visit all your local grocery stores and check out what they have and how it is killed. I got a very nice *Malaclemmys* once from a Chinatown grocery store. [*Los Angeles Times*, January 23, 2000, from Marcia Rybak]

Calling all San Francisco grocers!
"A voracious Asian eel found near Everglades National Park could become a biological nightmare if it gets into the park. . . . [It] has razor sharp teeth . . . " grows to three feet and is nocturnal. As usual with supertramps, it eats everything—frogs, fish, worms, crawdaddies and so on. The eel is native to warm parts of eastern Asia where it is eaten mostly by crocodiles and people. [*Arkansas Democrat-Gazette*, March 5, 2000, from Bill Burnett]

Gross, but productive
National Geographic reports that researchers in New Jersey have been collecting road-killed female diamondback terrapins, hatching out their eggs (which remain viable for a while post-mortem of the mom) and raising the offspring to 3-inch size before release. The moms are killed crossing roads, trying to get to their dune nesting habitats. [December 1999, from Ardis Allen] I have heard of some local people doing this with local road kill. How about publishing your results, folks?

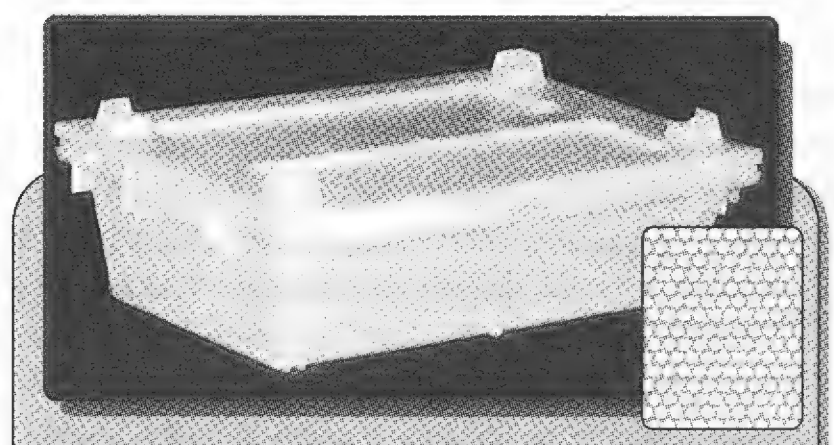
Gulping is good
Tiny Texas threadsnakes (*Leptotyphlops*) have a jaw structure and feeding style unlike any others in the world, according to *Science News*. When studied, the six to eight inch long snake (which is as big around as an average spaghetti noodle) was found to "depend on their toothy lower jaw, which is divided at the midline." Rather like a pair of swinging doors into an old time Western saloon, the food items fly in through the jaws at the rate of several ants per second. [Volume 156, December 4, 1999, from Charles D. Miller, III and Emily Forcade]

No more *Vivarium?*
In a total surprise to everyone but the principles involved, California's *Reptiles* magazine bought out *Vivarium*, which had been the first color magazine of herpetology in the U.S. Publishers say that the book part of the business will continue, but the fate of the magazine is still unknown, including the last -- perhaps phantom -- issue which was ready to go to press when the sale took place. This was all the available information as this *Bulletin* goes to press.

Thanks to everyone who contributed this month. And to several other people for sending me really cool stuff that I'm saving for next time. You can contribute, too. Take whole pages of newspaper and magazines with herp related articles or do the careful clipping thing and attach the date/publication slug to all your origami. Make sure your name is on each page. Those little address labels they send free to a good home work really well for this. Mail to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. Drop by my website for more herp stuff and a glimpse into my real life as a college professor at NEIU <http://www.neiu.edu/~ebeltz> and other interesting things.

Health Food for your herps!

Highest quality rodents are available in all sizes from pink mice to jumbo rats. Fresh frozen crawler mice are only 17¢ each in lots of 2,000. All frozen animals are shipped in insulated boxes.



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For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: http://www.themousefactory.com.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: baby Colombian boa constrictors, c.b. 4/6/00, $75 each. Matt, (219) 462-8049. [NW Indiana]

For sale: Now taking reservations for the following c.b. 2000 expected garter snake offspring: **Blais crimsons**, as seen in *Vivarium*, Vol. 9, No. 6, p. 10. This will be my first year producing these outrageous morphs. Crimson red with minimal black and white intermixed plus other possible variations. **I have 1 female that is solid black with pumpkin orange fleckings throughout her entire body *plus* an almost solid orange head**. Crimsons will be extremely popular for years to come. Prices vary based on degree of red, $200–250 each. **Blais flames**, as seen in *Vivarium*, Vol. 9, No. 6, pp. 12–13. Sharp morphs with varying degrees of red/orange on sides and heads. Prices vary based on degree of red/orange, $50–125 each. **Blais peach**, attractive peach coloration with black, white and yellow intermixed, also seen in *Vivarium*, Vol. 9, No. 6, p. 13, $50 each. **Anerythristic eastern**, originated in Illinois, dark black with sky blue dorsal stripe and blue ventrals, waiting list started, limited numbers available, $175 each; **melanistic × anerythristic**, this cross could produce something unique in the F_2 generation, $75 each; **Florida × anerythristic**, Florida babies are typically large, and one of the easiest to get onto mice, $65 each; **het anerythristic**, $50 each; **melanistic eastern**, midnight black with white chins, copy of permit provided upon request, $25 each; **Florida blue (*sirtalis*)**, varying degrees of blue have made this color morph extremely popular, price varies based on degree of blue, $10–50 each; **anerythristic red-sided garter**, charcoal black with gray dorsal stripe and white fleckings throughout entire body, beautiful morph, $100 each; **het anerythristic red-sided**, $50 each; **possible het anerythristic red-sided**, $25 each; **snow plains**, these are beautiful, snow white with a faint stripe and ruby red eyes, produced for the first time in 1999, **snows**, $375 each, **hets**, $175 each; **albino plains (Illinois strain) × red plains**, these will be popular for years to come—red strain is 2 bloodlines, all from Illinois, one brick-red with black spots throughout the body, the other a shade lighter, **ultimately this breeding should produce *blood-red albinos*, sure to be spectacular**, limited numbers available, **albino × red**, $150 each, **albino hets**, $60 each; **albino plains**, this bloodline is from Iowa, the classic albino, pearly white with lavender intermixed and pink eyes, similar to albino Cal kings, ⅔ are het for anerythristic as well, 2 free possible hets with each pair purchased, while they last, **albino**, $125 each; **anerythristic plains**, dark black with gray dorsal stripe and blue ventrals, 2 bloodlines, Iowa and Illinois, Iowa bloodline is ⅔ het for albino as well, Illinois bloodline has limited numbers, 2 free possible hets (Iowa bloodline) with each pair purchased, while they last, **anerythristic**, $100 each, **het anerythristic (Illinois bloodline)**, $50 each; **quad het plains**, the breeding of 2 unrelated double hets (albino/anerythristic × albino/anerythristic), albinos are from Iowa and Nebraska, anerythristics from Illinois and Iowa, numerous possibilities exist with this breeding, the best being that the ingredients are there for 2 different snow strains, $75 each. Scott Felzer, (919) 934-0110, EST [NC]. 20% refundable deposit will guarantee your spot on a waiting list. I'm always looking for aberrant/unusual garters, let me know what you have. **Most garter snake species will eat rodents and it's generally easy to convert them to rodents as babies**.

For sale: Brazilian rainbow boas, c.b. 9/99 from beautiful red parents w/ orange half-moons, $125 each; Mexican rosy boas, cream w/ brown striping, $50 each; Macklot's pythons, pair of flawless hatchlings, $175/pair; black & white banded Cal. kings, $25–35. Mark, Strictly Serpents, (847) 854-3259.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL http://www.herp.com/crc/ E-mail: crcsafetie@aol.com.

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-mail: blove@cyberstreet.com.

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Wanted: I am interested in acquiring information on egg sizes of lizards and turtles/tortoises—especially herbivores. If you have measurements of female body size (SVL; TL, or mass before or after parturition), length and width, or mass of eggs at the time of deposition, or body masses of hatchlings, I would appreciate very much hearing from you. Robert Espinoza, Dept. of Biology, MS 314, Univ. Nevada, Reno, NV 89557, E-mail: espin_r@unr.edu.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

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Unofficial Minutes of the CHS Board Meeting, April 14, 2000

The meeting was called to order by Jack Schoenfelder. Board member Marcia Rybak was absent.

Officers' Reports

The minutes of the March Board of Directors meeting were read, corrected and accepted.

The Treasurer's report was read and accepted. Gary Fogel pointed out that the raffle at the March general meeting did extremely well.

Mike Dloogatch distributed a handout displaying membership statistics on a graph. As of the April mailing there were 861 members.

Lori King brought up the issue of finding a new location for out-of-town speakers since the location of the general meetings has changed to the CAS. It may be more convenient and economical to put guests up closer to the CAS rather than at the downtown hotels. The Days Inn on Diversey may be offering a discount.

Steve Spitzer thanked everyone for the flowers and stated that although it seems ironic that a corresponding secretary cannot write, he is beginning to be able to type. He also brought up the issue of insurance since ReptileFest is coming up soon.

Standing Committees

Grants: Mike Dloogatch stated that we had received 12 grant applications. The decisions will be made by May.

Shows: Jenny Vollman reported that the Volo Bog Show will take place on April 16. There will be a breeder's show in July in Gurnee and Timberline Fisheries has offered the CHS complimentary crickets to sell at this show. Jenny suggested that the CHS participate in this show in order to promote membership and is willing go. Mike Dloogatch expressed concern over transporting boxed crickets during summer weather and Gary Fogel suggested that the CHS donate the proceeds to a charity. There were no objections. On May 24–26 the Park District will be hosting an event in which children can make turtles from boxes. There's been a request for Turtle Club members to come on the 25th with live turtles. Tim Weigel and other journalists will be attending this event which will take place on 56th & Cottage Grove. Steve Spitzer will coordinate this with the Turtle Club.

Raffle: Gary Kostka stated that the March raffle was a great success. He will continue to present quality novelty items in future raffles. He thanked Linda Malawy and all the others who helped out with the hectic March raffle.

Library: Jack Schoenfelder would like the new librarian to attend a board meeting to discuss future plans for the library. Gary Fogel reminded him that we are at a standstill with the library because of the storage problem; Jack would like to speak with Jeff Janovetz regardless.

Adoptions: Rich Crowley reported the usual overabundance of iguanas and a 6½-foot Burmese python (in good condition) up for adoption. He was able to place a large number of turtles recently and noted a trend in adoption patterns. July–August and May–June tend to have the greatest number of adoption requests. This may be due to the school schedules. Ron Humbert asked Rich if nonmembers could receive animals and Rich responded by stating that he considers it on a case-to-case basis. He would like to promote adoption privileges as part of CHS membership.

ReptileFest: The last ReptileFest meeting will be held at Mike's downtown office on Saturday, April 22, at 4:00 P.M. Everything is running smoothly thus far. Ron Humbert urged everyone to get their applications in as it appears that participation is down from last year; many wait until the last minute to sign up. Some of the other Herp societies contacted were Hoosiers, Central Illinois, Champaign, Minnesota, Wisconsin, St. Louis and Michigan. The issue of exhibiting spiders was brought up and the overall consensus was no, this is a reptile show. Lori King hopes more people will take photos at the 'Fest in order to get a bigger variety of perspectives. Lori also reported that Animal Planet is interested in ReptileFest for a show in the future. The fact that all of the animals shown at the 'Fest are people's own personal pets sparked their interest and a press kit will be made up for them. Jenny Vollman cannot operate the photo booth and asked for volunteers.

Nominating Committee: Ron Humbert and Joan Moore have begun forming the nominating committee. Ron clarified that the bylaws state that this committee can include a *maximum* of two board members, but need not include any.

Picnic: Steve Spitzer reported that this summer's picnic will take place Sunday, August 13, in Algonquin.

Salamander Safari: Ron Humbert reported that the safari was a great success compared to last year. More than 20 people attended and several brought amphibians of their own. About 125 salamanders of four species were spotted and a feast of doughnuts was provided. Jack thanked both Ron and Dottie for their efforts.

Old Business

Rich Crowley reported that a ban on international trade in land tortoises is to be discussed at the upcoming CITES meeting in Africa and that sentiment is strong for such a ban.

Bill Leja discussed the progress of the Chicagoland frog survey now in progress. Monitoring of wetlands in the Chicago area is needed to get a fix on frog populations so that conservation needs can be assessed for the future. Mike Dloogatch pointed out the need for a conservation-oriented person on the board. Anyone interested in surveying frog populations should contact Bill at (773) 465-2122.

Ron thanked the CHS participants in Milwaukee's "Snake Days," Bob Bavirsha, Rich Crowley, Jenny Vollman and Gary Kostka, and urged stronger CHS participation in this event due to the great enthusiasm shown at this show.

Gary Fogel reported that the answering machine message

needs to be updated and streamlined.

New Business

Jack announced that an animal of the month is needed for the April meeting. Joan Moore offered to bring corn snakes and Rich will bring a few adoption candidates. Jack stated that people bringing animals should arrive early and perhaps a specific area could be designated for live animals. It was concluded that the first general meeting went very well and Joan suggested that audience questions should be repeated for the benefit of people in the rear. Lori stated that the CAS was also pleased with the turnout and is interested in working with the CHS in the future.

Bob Bavirsha suggested a question and answer area to be designated for new herpers at the general meetings and Linda Malawy suggested holding workshops for any open months for which speakers are difficult to find.

Round Table

Dottie Humbert stated that she does not have access to the Internet and others may have this same problem. This became apparent when she had to mail out a membership application to someone who could log onto the CHS web site. The problem with the web site was noted by others also. Marcia will be asked to investigate.

Rich Crowley asked on behalf of Dave (a member) if anyone could "iguana-sit" three iguanas (3 ft.) while his family moves. Rich feels there is a strong need for reptile boarding services. Emily Forcade stated that Misener-Holley has a bulletin board notice offering pet-sitting services.

Will Forcade showed the current issue of *National Geographic* because it contained several herp-related items.

Jack expressed happiness at seeing many old faces at the meeting.

Linda Malawy asked about members speaking at the general meetings.

The meeting adjourned at 9:35 P.M.

Respectfully submitted by Recording Secretary Karen Bielski

News and Announcements

2000 CHS GRANT RECIPIENTS

The CHS Grants Committee is pleased to announce the CHS grant recipients for 2000. The committee consisted of Michael Dloogatch, Lori King and Marcia Rybak. As is always the case, the number of applications exceeded the number of grants that could be awarded, and the final decision was a difficult one. Seven grants were awarded, in varying amounts, as follows:

- Rita S. Mehta, Masters Program in Biology, The University of Texas at Tyler. "Long-term Study on the Reproductive Biology of *Corallus grenadensis*," $500.
- John Allsteadt, Department of Biological Sciences, Old Dominion University. "Geographic Variation in the Morphology of the Timber Rattlesnake, *Crotalus horridus*," $300.
- Eli Greenbaum, Division of Herpetology, Natural History Museum, The University of Kansas. "Chemoreception of the Pit Viper *Agkistrodon contortrix*, in Relation to Prey Preference and Venom Composition," $300.
- Jake Socha, Department of Organismal Biology and Anatomy, The University of Chicago. "The Biomechanics of Flight in Flying Snakes (Colubridae: *Chrysopelea*)," $300.
- R. Michael Burger, Department of Herpetology, San Antonio Zoo. "Caño Palma Biological Station Inventory Survey," $250.
- Beth Flitz, Department of Biological Sciences, Eastern Illinois University. "Nest Site Selection and Hatchling Dispersal in the Eastern Box Turtle (*Terrapene carolina*)," $250.
- Christine Todd, Department of Biological Sciences, Illinois State University. "Importance of Terrestrial Buffer Zones in Wetland Conservation of the Cricket Frog, *Acris crepitans*," $250.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:00 P.M., Wednesday, May 31, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Al Baldogo** will speak to us on "Exploring Indonesia." Al has been traveling to the islands of Indonesia since 1994. He has devoted much of his time to the study of the rare Boelen's python found on New Guinea. His association with the native cultures of New Guinea has enabled him to travel where few Westerners have been allowed to go. Included in his programs are glimpses of these fascinating people as well as a diverse selection of Indonesia's other wildlife. In 1999 he was the field guide and story teller in a documentary based on the Boelen's pythons filmed by Wild Things of Hollywood, California. Al and his wife Cindy are the owners of Baldogo Reptiles in Fontanelle, Iowa. They specialize in the keeping and breeding of reticulated pythons.

Our annual **Show & Tell** meeting is set for June 28. All members are encouraged to bring a favorite animal and to be prepared to come up on stage and tell us something about the animals they have brought.

The Chicago Turtle Club

The next meeting of the Chicago Turtle Club will be on Sunday, May 28, 1:00 – 4:00 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. This will be the club's spring turtle show to which everyone is cordially invited: "Touch a Turtle—Tickle a Tortoise." Meetings are informal. Questions, children and animals are welcome. Parking is free. For more info call Lisa Koester, (773) 508-0034 or visit the CTC website: http://www.geocities.com/~chicagoturtle.

NEW MEETING SITE

The regular monthly meetings of the Chicago Herpetological Society now take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meeting dates will continue to be the last Wednesday of each month. Meetings start at 7:00 P.M. and last until 9:30 P.M. Free parking is available on Cannon Drive and also across Fullerton in the Lincoln Park Zoo lots. A plethora of CTA buses stop within easy walking distance.

DONATIONS TO THE MARCH 29 RAFFLE

The following is a listing of those businesses and individuals who generously donated items for our monthly raffle at the March 29 meeting. The donated items are shown in parentheses.

Randall Burkey (Hova-Bator incubator); **West Indian Iguana Specialist Group** (T-shirt); **Hagen** (OrnamentAlls rock shelter); **Ghann's Cricket Farm** (cricket gift certificates); **Lori King** (ceramic herp pitcher / mounted dinosaur prints / Paul Sereno autographed dino book and other dino objets d'art); **Marcia Rybak** (dinosaur fossils and book / herp hanging calendars); **Don Wheeler** (herp artwork); **Ron and Dotty Humbert** (driftwood cage decor); **Cheryl Roge–Good Friends Animal Hospital** (herp book / ceramic heat element); **Rich Crowley–CHS adoptions** (fluorescent herp lights); **Marcia Rybak and Lori king** (T-shirts with Paul Sereno's picture).

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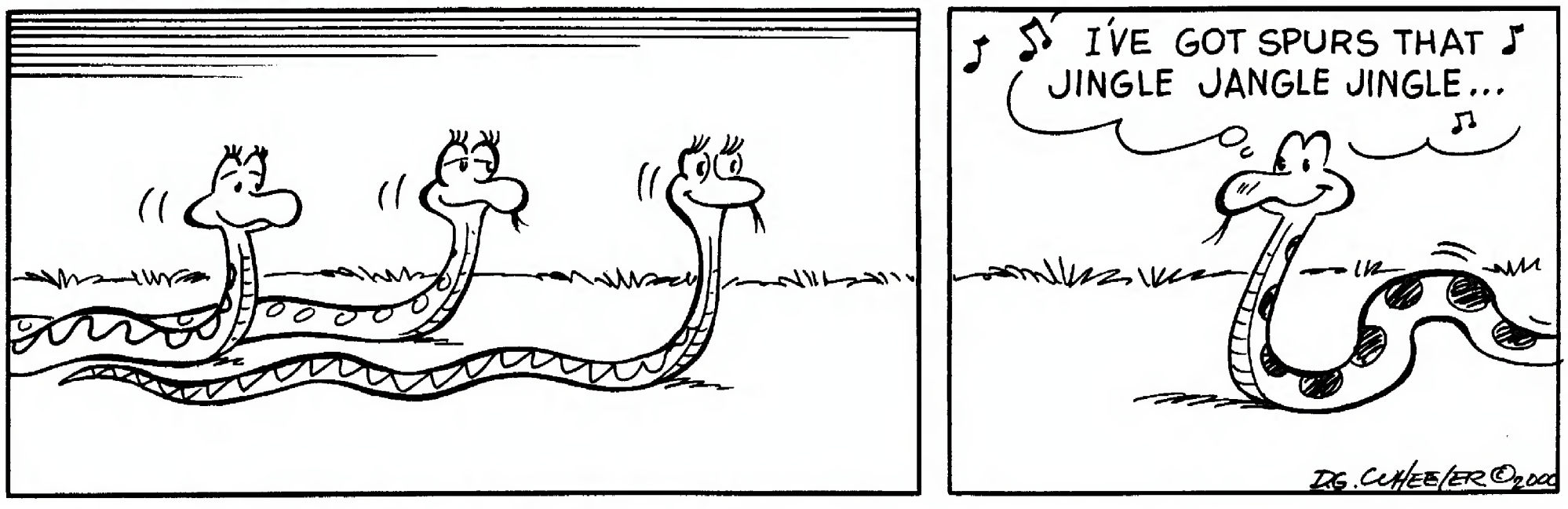

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